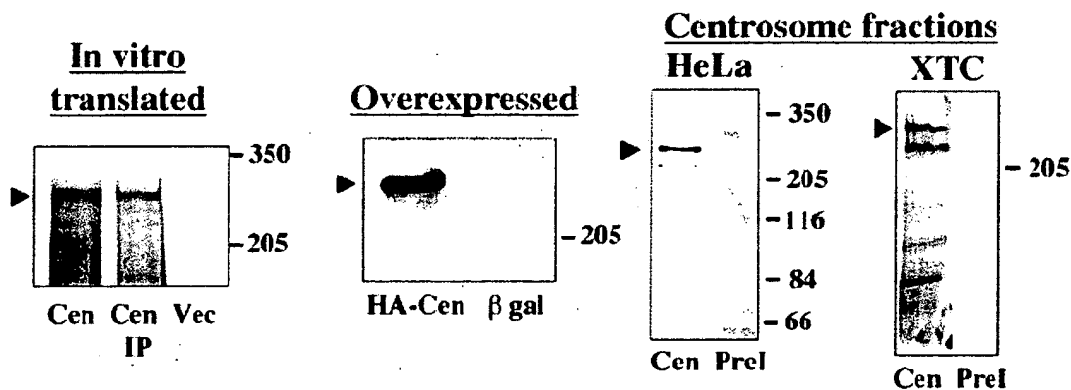
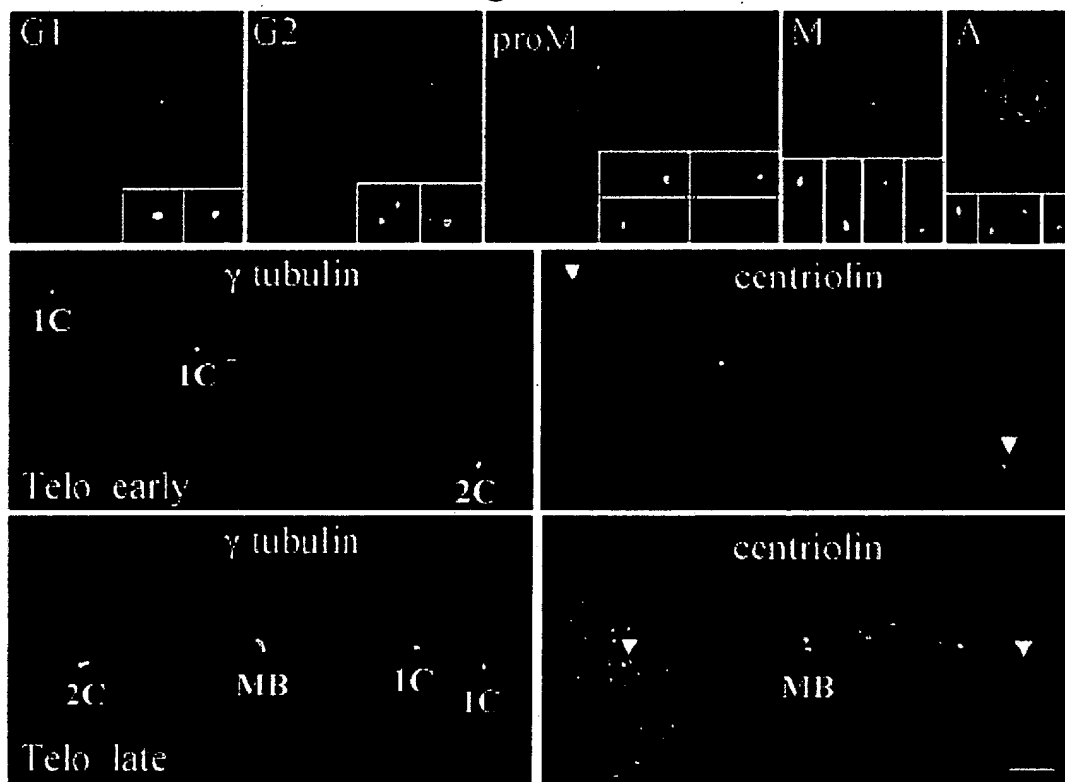




**Figure 1A**



**Figure 1B**

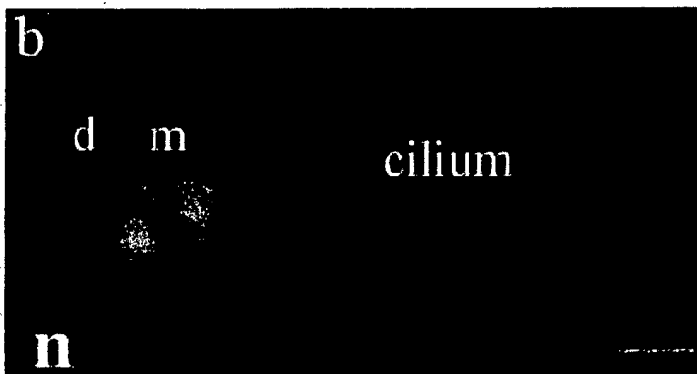


BEST AVAILABLE COPY

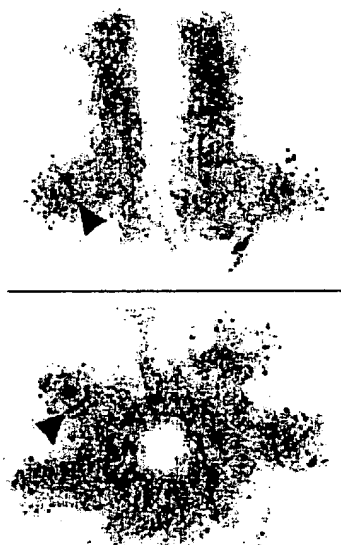
**Figure 2A**



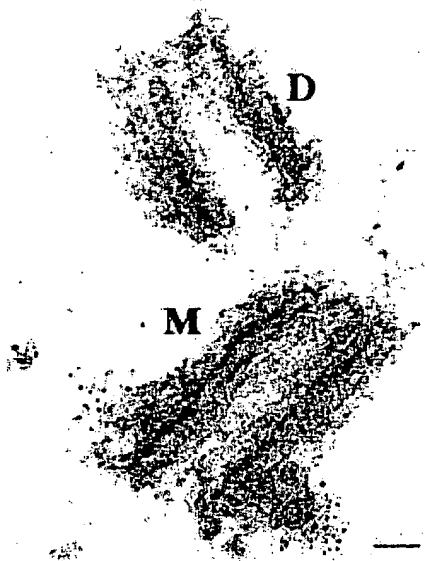
**Figure 2B**



**Figure 2C**



**Figure 2E**



**Figure 2D**

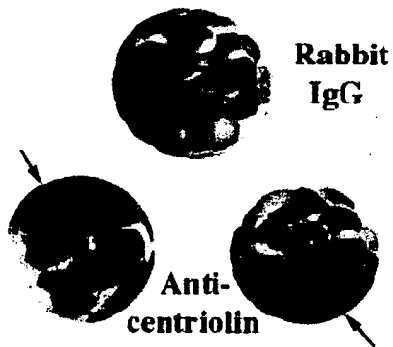
**Figure  
2F**



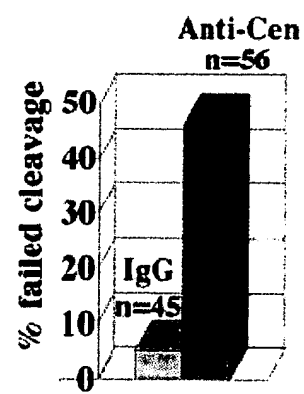
**Figure  
2G**



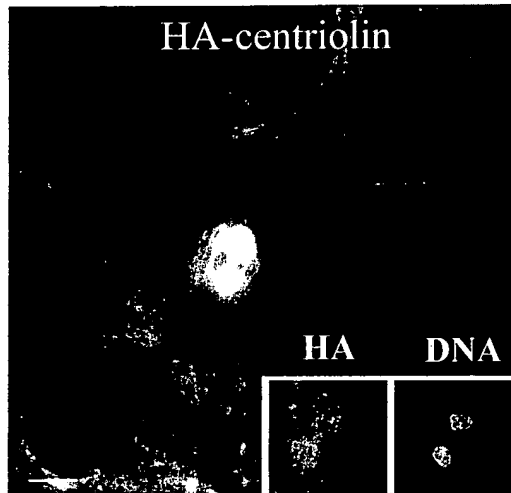
**Figure 3A**



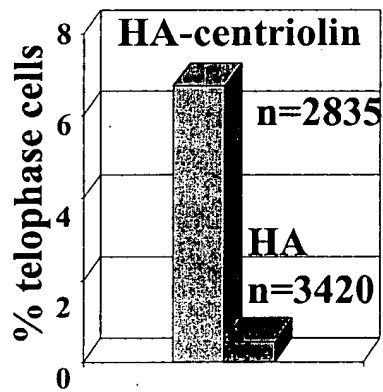
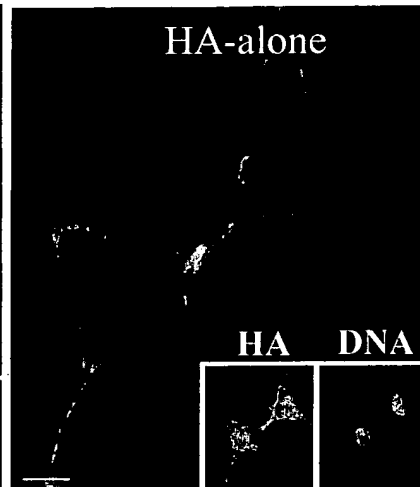
**Figure 3B**



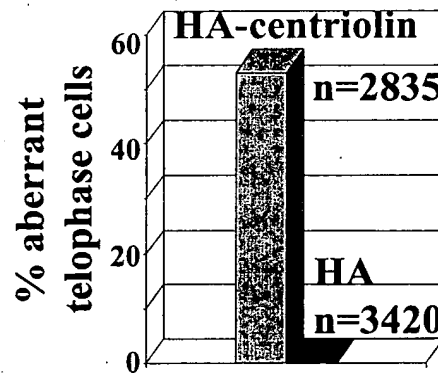
**Figure 3C**



**Figure 3D**

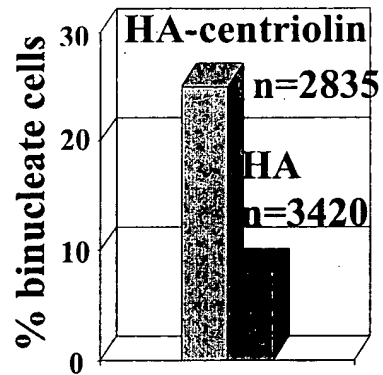


**Figure 3E**

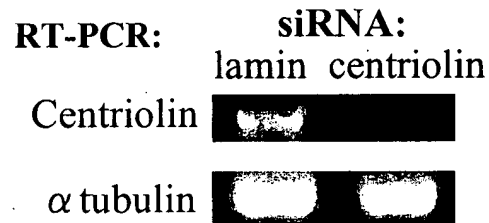


**Figure 3F**

**Figure 3G**



**Figure 4A**



**Figure 4B**



Figure 4C

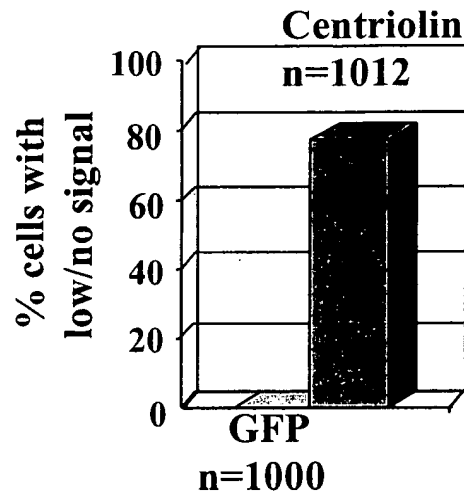
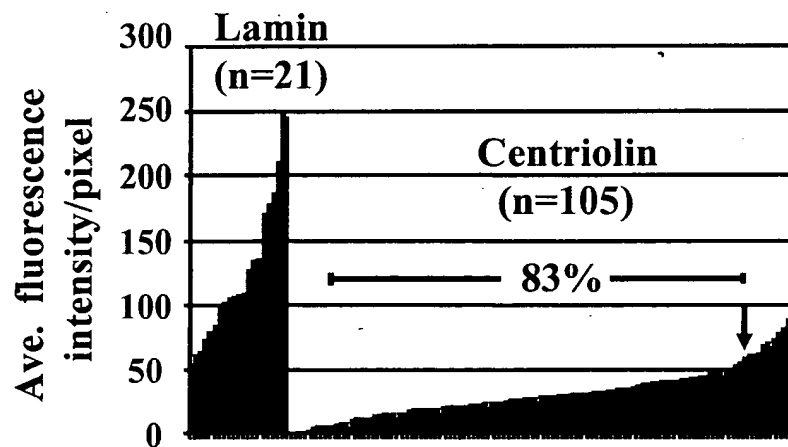
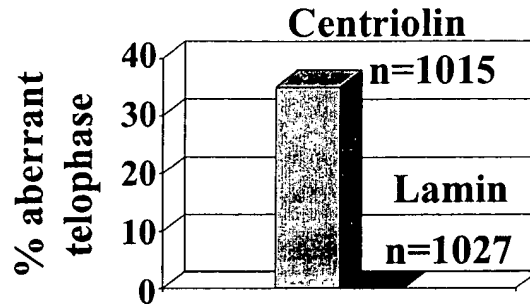


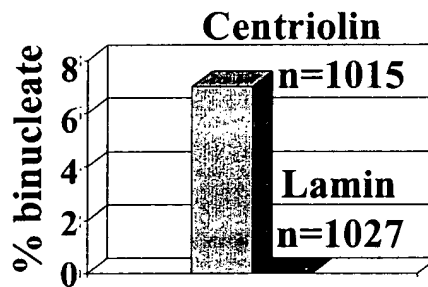
Figure 4D



**Figure 4E**



**Figure 4F**



**Figure 4G**

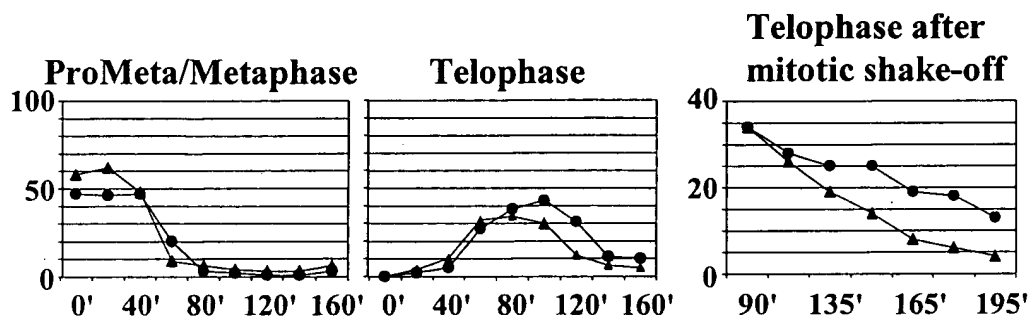


Figure 5A

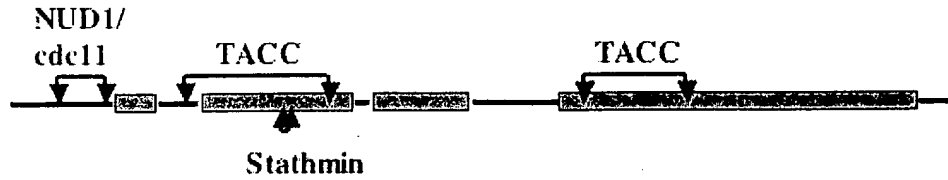


Figure 5B

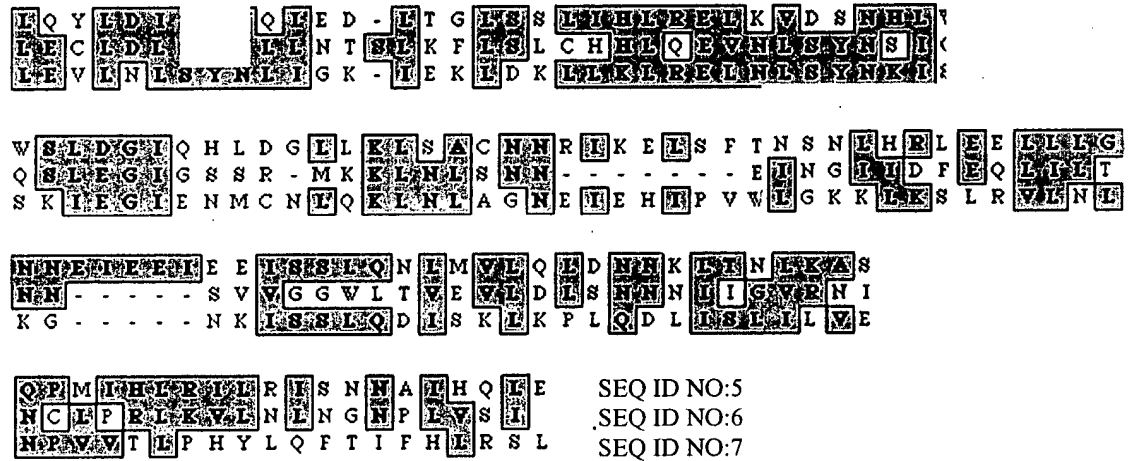
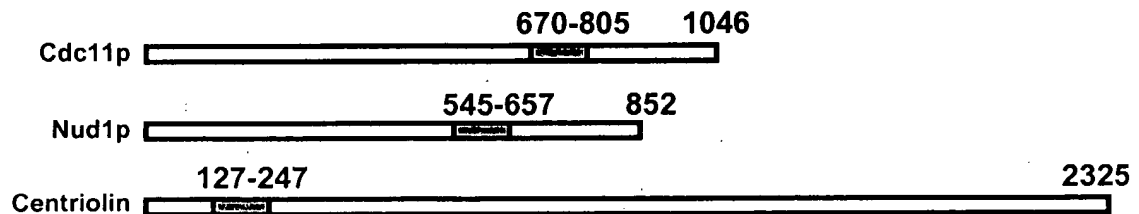
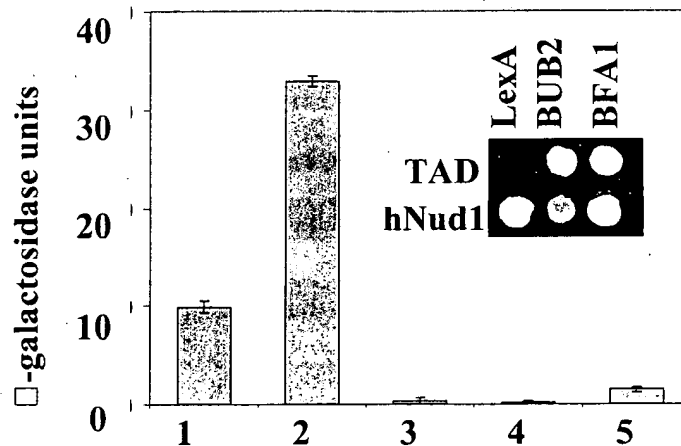


Figure 5C

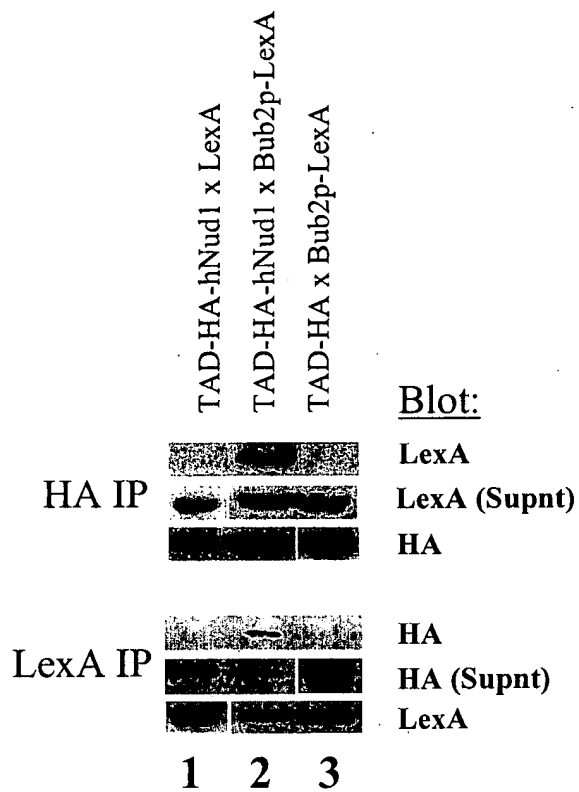




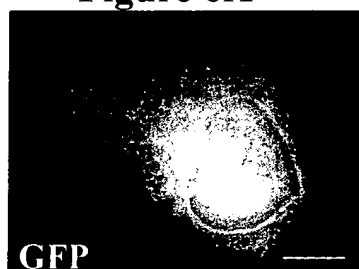
**Figure 5D**



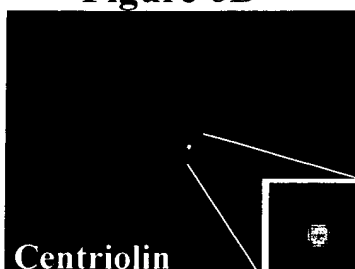
**Figure 5E**



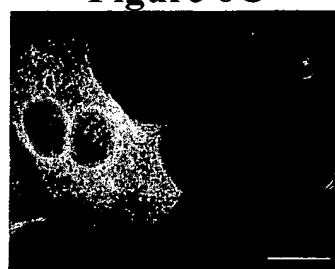
**Figure 6A**



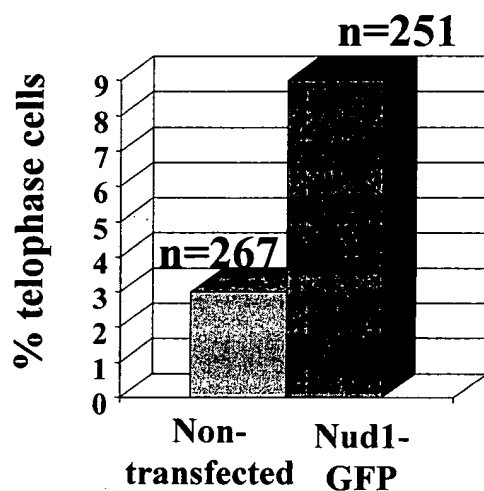
**Figure 6B**



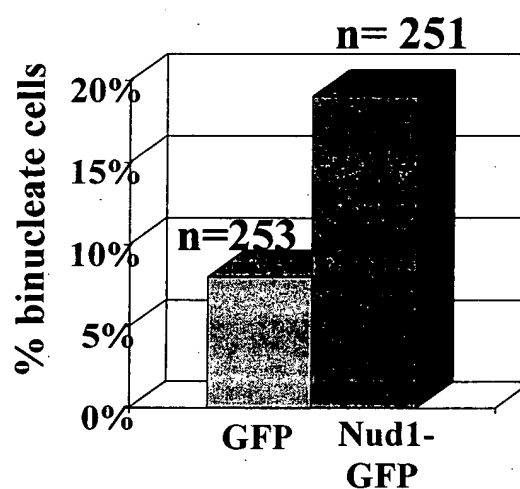
**Figure 6C**



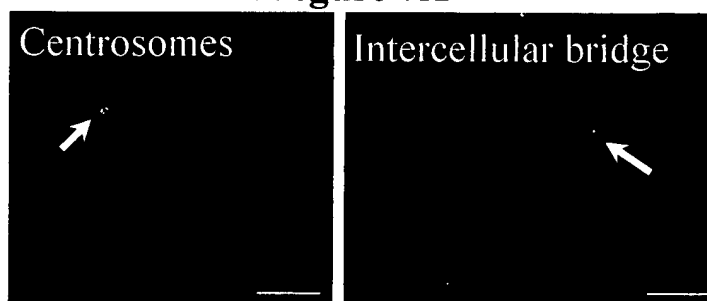
**Figure 6D**



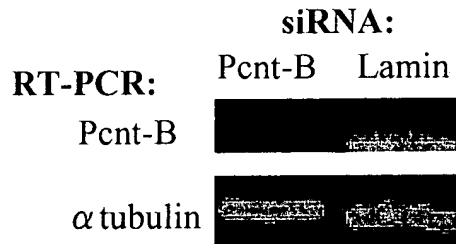
**Figure 6E**



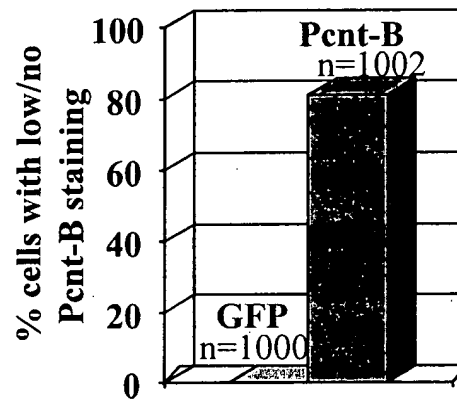
**Figure 7A**



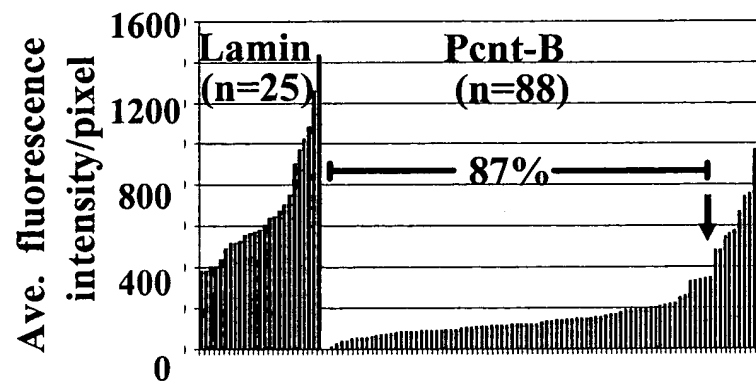
**Figure 7B**



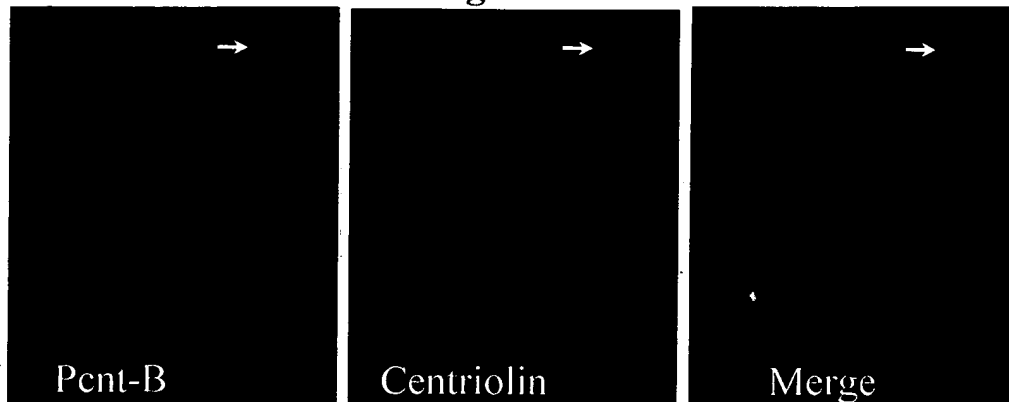
**Figure 7C**



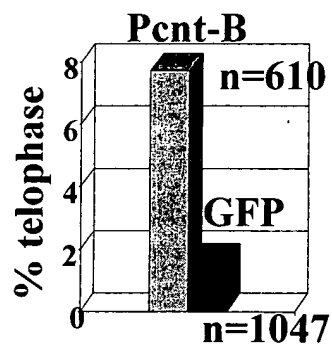
**Figure 7D**



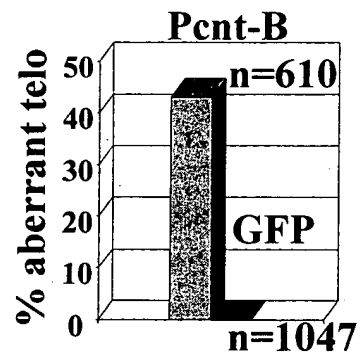
**Figure 7E**



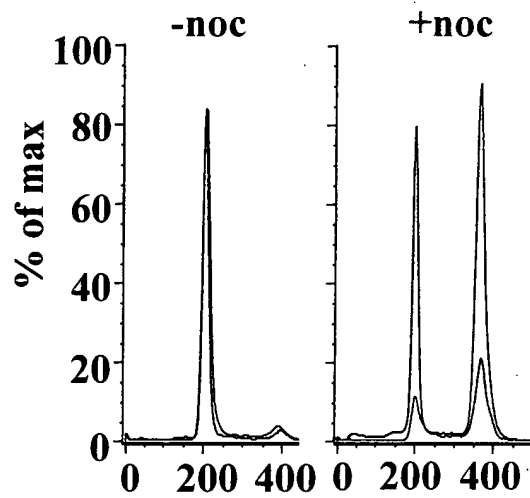
**Figure 7F**



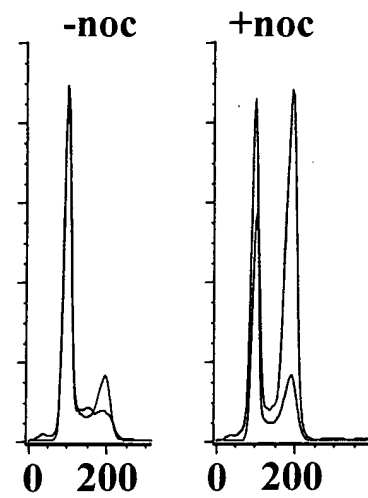
**Figure 7G**



**Figure 8A**  
**Centriolin**

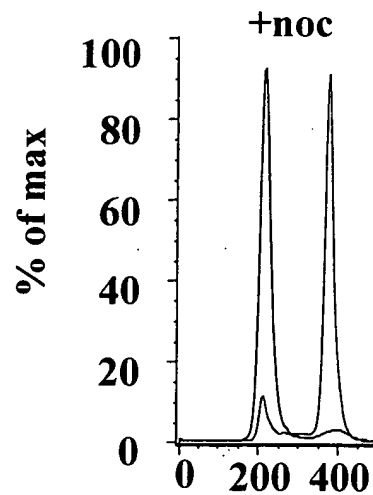


**Figure 8B**  
**Pcnt-B**



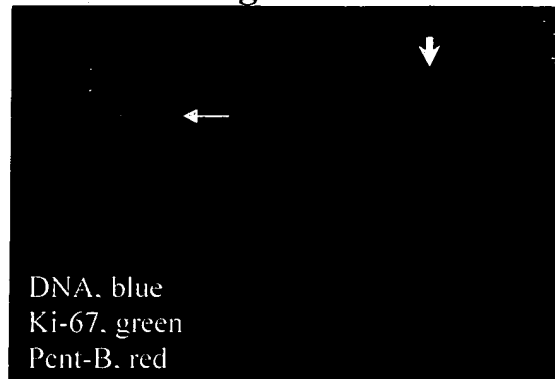
**FL2-A**

**Figure 8C**  
**Serum starved**

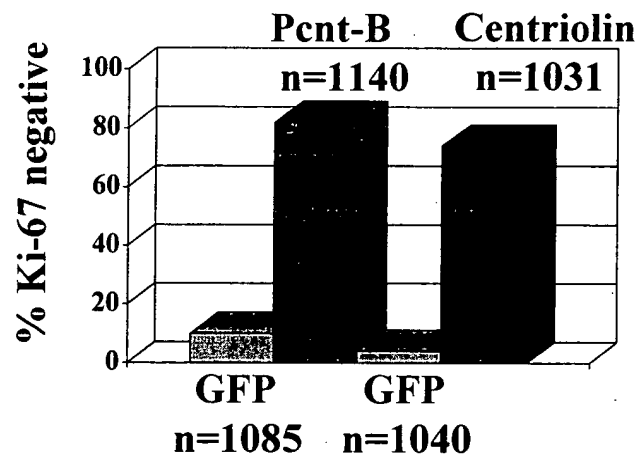


**FL2-A**

**Figure 8D**



**Figure 8E**



**Figure 9**

**Without Nocodozole**

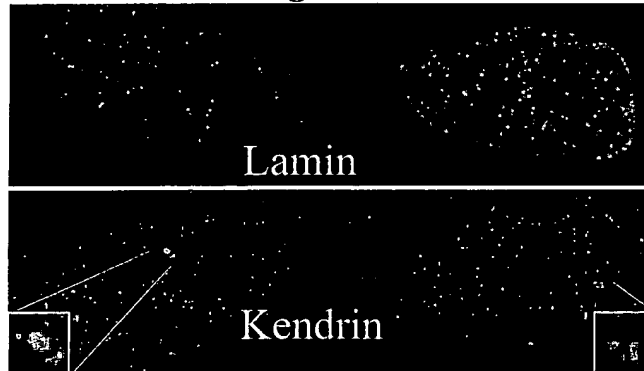
	<b>%G1</b>	<b>%S</b>	<b>%G2</b>
<b>Centriolin</b>	74	13	4
<b>Lamin (control)</b>	62	23	7
	<b>%G1</b>	<b>%S</b>	<b>%G2</b>
<b>Pent-B</b>	70	13	14
<b>GFP (control)</b>	46	35	19

**With Nocodozole**

	<b>%G1</b>	<b>%S</b>	<b>%G2</b>
<b>Centriolin</b>	49	13	23
<b>Lamin (control)</b>	19	19	46
	<b>%G1</b>	<b>%S</b>	<b>%G2</b>
<b>Pent-B</b>	65	14	19
<b>GFP (control)</b>	24	15	60

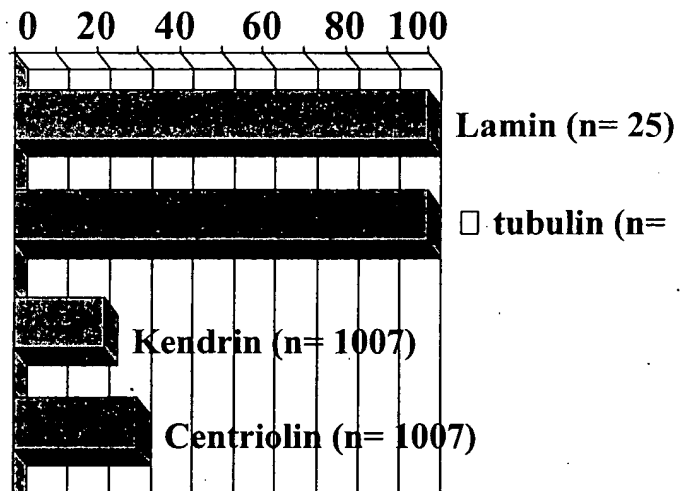
Cell Cycle analysis of glow cytometry data (Fig. 8)

**Figure 10**



**Figure 11**

% cells with unaltered  
staining levels





## REPLACEMENT FIGURES

Page 17 of 44

## Figure 12A

atg aag aaa ggt tct caa caa aaa ata ttc tcc aaa gca aag ata cca Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro 1 5 10 15	48
tca tca tct cac tct cct atc cca tca tct atg tcc aat atg aga tct Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser 20 25 30	96
agg tca ctt tca cct ttg att gga tca gag act cta cct ttt cat tct Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser 35 40 45	144
gga gga cag tgg tgt gag caa att gag att gca gat gaa aac aat atg Gly Gly Gln Trp Cys Glu Gln Ile Glu Ile Ala Asp Glu Asn Asn Met 50 55 60	192
ctt ttg gac tat caa gac cat aaa gga gct gat tca cat gca gga gtt Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val 65 70 75 80	240
aga tat att aca gag gcc ctc att aaa aaa ctt act aaa cag gat aat Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn 85 90 95	288
ttg gct ttg ata aaa tct ctg aac ctt tca ctt tct aaa gac ggt ggc Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly 100 105 110	336
aag aaa ttt aag tat att gag aat ttg gaa aaa tgt gtt aaa ctt gaa Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu 115 120 125	384
gta ctg aat ctc agc tat aat cta ata ggg aag att gaa aag ttg gac Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp 130 135 140	432
aag ctg tta aaa tta cgt gaa ctc aac tta tca tat aac aaa atc agc Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser 145 150 155 160	480
aaa att gaa ggc ata gaa aat atg tgt aat ctg caa aag ctt aac ctt Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu 165 170 175	528
gca gga aat gaa att gag cat att cca gta tgg tta ggg aag aag tta Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu 180 185 190	576
aaa tct ttg cga gtc ctc aat ttg aaa ggc aac aag ata tca tcg ctc Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu 195 200 205	624
caa gat ata agc aag ttg aaa ccg ctt caa gat ttg att tct ctg atc Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile 210 215 220	672
cta gtt gaa aat cca gtt gtg acc ctt cct cat tac ctc cag ttt acc Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr 225 230 235 240	720

## REPLACEMENT FIGURES

## Figure 12B

att ttc cac ctc cgt tca ttg gaa agt ttg gaa ggt cag cca gta acc Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr 245 250 255	768
act cag gat aga cag gag gct ttt gag aga ttc agt tta gaa gag gta Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val 260 265 270	816
gaa aga ctg gaa aga gac cta gaa aaa aag atg ata gaa act gaa gag Glu Arg Leu Glu Arg Asp Leu Lys Lys Met Ile Glu Thr Glu Glu 275 280 285	864
ctt aag agc aaa caa aca agg ttc ctt gag gaa att aaa aat caa gat Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp 290 295 300	912
aaa ttg aat aaa tca tta aaa gag gag gcc atg tta cag aaa cag agc Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser 305 310 315 320	960
tgt gag gaa ctc aag agt gac tta aac aca aaa aat gaa ttg cta aaa Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys 325 330 335	1008
cag aag acc ata gaa tta aca cga gca tgt cag aag caa tat gag ctg Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu 340 345 350	1056
gaa cag gaa ttg gcc ttt tat aaa att gat gct aaa ttt gag cca cta Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu 355 360 365	1104
aat tat tat cca tca gag tat gct gaa att gat aaa gcc cca gat gaa Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu 370 375 380	1152
agc cct tac att ggc aaa tcc aga tac aag aga aat atg ttt gcc aca Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr 385 390 395 400	1200
gag agt tat att att gag agt gct cag gca gta cag atc aag aag atg Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met 405 410 415	1248
gag cca gat gaa caa ctt aga aat gat cac atg aac ttg aga ggc cac Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His 420 425 430	1296
aca cca ctg gac acg caa ctg gaa gac aaa gaa aaa ata agt gca Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala 435 440 445	1344
gca caa act cga cta tca gaa ctg cat gat gaa ata gaa aag gca gaa Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu 450 455 460	1392
caa caa att ttg aga gct act gaa gaa ttt aaa caa ctg gaa gaa gct Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala 465 470 475 480	1440

## REPLACEMENT FIGURES

Page 19 of 44

## Figure 12C

ata caa cta aaa aag att tca gaa gca ggg aaa gac ctt ctt tac aag Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys 485 490 495	1488
cag ttg agt ggt aga cta caa ctt gta aat aaa tta cgc cag gaa gct Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala 500 505 510	1536
ctg gat cta gaa ctg cag atg gaa aag caa aag cag gaa att gcc gga Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly 515 520 525	1584
aag cag aag gag att aag gac ctg caa ata gcc ata gat agc ctg gat Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp 530 535 540	1632
tcc aaa gac cca aaa cat tcc cat atg aag gct caa aag agc ggt aaa Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys 545 550 555 560	1680
gaa caa cag ctt gac att atg aac aag cag tac caa caa ctt gaa agt Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser 565 570 575	1728
cgt ttg gat gag ata ctt tct aga att gct aag gaa acg gaa gag att Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile 580 585 590	1776
aag gac ctt gaa gaa cag ctt act gaa ggc cag ata gca gca aat gaa Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu 595 600 605	1824
gcc ctg aag aag gat tta gaa ggt gtt atc agt ggg ttg caa gaa tac Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr 610 615 620	1872
ctg ggg acc att aaa ggc cag gca act cag gcc cag aat gag tgc agg Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg 625 630 635 640	1920
aag ctg cgg gat gag aaa gag aca ttg ttg cag aga ttg aca gaa gtc Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val 645 650 655	1968
gag cag gag aga gac cag ctg gaa ata gtt gcc atg gat gca gaa aat Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn 660 665 670	2016
atg agg aag gag ctt gca gag cta gaa agt gcc ctc caa gag cag cat Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His 675 680 685	2064
gag gtg aat gca tct ttg cag cag acc cag gga gat ctc agt gcc tat Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr 690 695 700	2112
gaa gct gag cta gag gct cgg cta aac cta agg gat gct gaa gcc aac Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn 705 710 715 720	2160

## REPLACEMENT FIGURES

Page 20 of 44

## Figure 12D

cag ctc aag gaa gag ttg gaa aaa gta aca aga ctt acc cag tta gaa Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu 725 730 735	2208
caa tca gcc ctt caa gca gaa ctt gag aag gaa agg caa gcc ctc aag Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys 740 745 750	2256
aat gcc ctt gga aaa gcc cag ttc tca gaa gaa aag gag caa gag aac Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn 755 760 765	2304
agt gag ctc cat gca aaa ctt aaa cac ttg cag gat gac aat aat ctg Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu 770 775 780	2352
tta aaa cag caa ctt aaa gat ttc cag aat cac ctt aac cat gtg gtt Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val 785 790 795 800	2400
gat ggt ttg gtt cgt cca gaa gaa gtg gca gct cgt gtg gat gag cta Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu 805 810 815	2448
aga aga aaa ctg aaa tta gga act ggg gaa atg aac atc cat agt cct Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro 820 825 830	2496
tca gat gtc tta ggg aaa agt ctt gct gat tta cag aaa caa ttc agt Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser 835 840 845	2544
gaa att ctt gca cgc tcc aag tgg gaa aga gat gaa gca caa gtt aga Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg 850 855 860	2592
gag aga aaa ctc caa gaa gaa atg gct ctg cag caa gag aaa ctg gca Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala 865 870 875 880	2640
act gga caa gaa gag ttc agg cag gcc tgt gag aga gcc ctg gaa gca Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala 885 890 895	2688
aga atg aat ttt gat aag agg caa cat gaa gca aga atc cag caa atg Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met 900 905 910	2736
gag aat gaa att cac tat ttg caa gaa aat cta aaa agt atg gag gaa Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu 915 920 925	2784
atc caa gcc ctt aca gat ctc caa ctt cag gaa gct gat gaa gag aag Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys 930 935 940	2832
gag aga att ctg gcc caa ctc cga gag tta gag aaa aag aag aaa ctt Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu 945 950 955 960	2880

## REPLACEMENT FIGURES

Page 21 of 44

## Figure 12E

gaa gat gcc aaa tct cag gag caa gtt ttt ggt tta gat aaa gaa ctg Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu 965 970 975	2928
aag aaa cta aag aaa gcc gtg gcc acc tct gat aag cta gcc aca gct Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala 980 985 990	2976
gag ctc acc att gcc aaa gac cag ctg aag tcc ctt cat gga act gtt Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val 995 1000 1005	3024
atg aaa att aac cag gag cga gca gag gag ttg cag gaa gca gag agg Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg 1010 1015 1020	3072
ttc agc aga aag gca gca caa gca gcc aga gat ctc acc cga gca gaa Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu 1025 1030 1035 1040	3120
gct gag atc gaa ctc ctg cag aat ctc ctc agg cag aag ggg gag cag Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln 1045 1050 1055	3168
ttt cga ctt gag atg gag aaa aca ggt gta ggt act gga gca aac tca Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser 1060 1065 1070	3216
cag gtc cta gaa att gag aaa ctg aat gag aca atg gaa cga caa agg Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg 1075 1080 1085	3264
aca gag att gca agg ctg cag aat gta cta gac ctc act gga agt gac Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp 1090 1095 1100	3312
aac aaa gga ggc ttt gaa aat gtt tta gaa gaa att gct gaa ctt cga Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg 1105 1110 1115 1120	3360
cgt gaa gtt tct tat cag aat gat tac ata agc agc atg gca gat cct Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro 1125 1130 1135	3408
ttc aaa aga cga ggc tat tgg tac ttt atg cca cca cca cca tca tca Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser 1140 1145 1150	3456
aaa gtt tcc agc cat agt tcc cag gcc acc aag gac tct ggt gtt ggc Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly 1155 1160 1165	3504
ctt aag tac tca gcc tca act cct gtt aga aaa cca cgc cct ggg cag Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln 1170 1175 1180	3552
cag gat ggg aag gaa ggc agt caa cct ccc cct gcc tca gga tac tgg Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Ala Ser Gly Tyr Trp 1185 1190 1195 1200	3600

## REPLACEMENT FIGURES

Page 22 of 44

## Figure 12F

gtt tat tct ccc atc agg agt ggg tta cat aaa ctg ttt cca agt aga Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg 1205 1210 1215	3648
gat gca gac agt gga gga gat agt cag gaa gag agt gag ctg gat gac Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp 1220 1225 1230	3696
caa gaa gaa ccc cca ttt gtg cct cct cct gga tac atg atg tat act Gln Glu Glu Pro Pro Phe Val Pro Pro Gly Tyr Met Met Tyr Thr 1235 1240 1245	3744
gtg ctt cct gat ggt tct cct gta ccc cag ggc atg gcc ctg tat gca Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala 1250 1255 1260	3792
cca cct cct ccc ttg cca aac aat agc cga cct ctc acc cct ggc act Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr 1265 1270 1275 1280	3840
gtt gtt tat ggc cca cct cct gct ggg gcc ccc atg gtg tat ggg cct Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro 1285 1290 1295	3888
cca ccc ccc aac ttc tcc atc ccc ttc atc cct atg ggt gtg ctg cat Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His 1300 1305 1310	3936
tgc aac gtc cct gaa cac cat aac tta gag aat gaa gtt tct aga tta Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu 1315 1320 1325	3984
gaa gac ata atg cag cat tta aaa tca aag aag cgg gaa gaa agg tgg Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp 1330 1335 1340	4032
atg aga gca tcc aag cgg cag tcc gag aaa gaa atg gaa gaa ctg cat Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His 1345 1350 1355 1360	4080
cat aat att gat gat ctt ttg caa gag aag aaa agc tta gag tgt gaa His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu 1365 1370 1375	4128
gta gaa gaa tta cat aga act gtc cag aaa cgt caa cag caa aag gac Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp 1380 1385 1390	4176
ttc att gat gga aat gtt gag agt ctt atg act gaa cta gaa ata gaa Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu 1395 1400 1405	4224
aaa tca ctc aaa cat cat gaa gat att gta gat gaa att gag tgc att Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile 1410 1415 1420	4272
gag aag act ctt ctg aaa cgt cgc tca gag ctc agg gaa gct gac cga Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg 1425 1430 1435 1440	4320

## REPLACEMENT FIGURES

Page 23 of 44

## Figure 12G

ctc ctg gca gag gct gag agt gaa ctt tca tgc act aaa gaa aag aca Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr 1445 1450 1455	4368
aaa aat gct gtt gaa aag ttc act gat gcc aag aga agt tta ttg caa Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln 1460 1465 1470	4416
act gag tca gat gct gag gaa tta gaa agg aga gct cag gaa act gct Thr Glu Ser Asp Ala Glu Glu Leu Arg Arg Ala Gln Glu Thr Ala 1475 1480 1485	4464
gtt aac ctc gtc aaa gct gat cag cag cta aga tcg ctc cag gct gat Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp 1490 1495 1500	4512
gca aag gat ttg gag cag cac aaa atc aag caa gaa gaa atc ttg aaa Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys 1505 1510 1515 1520	4560
gaa ata aac aaa att gta gca gca aaa gac tca gac ttc caa tgt tta Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu 1525 1530 1535	4608
agc aag aag aag gaa aaa ctg aca gaa gag ctt cag aaa cta cag aaa Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys 1540 1545 1550	4656
gac ata gag atg gca gaa cgc aat gag gat cac cac ctg cag gtc ctt Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu 1555 1560 1565	4704
aaa gaa tct gag gtg ctt ctt cag gcc aaa aga gcc gag ctg gaa aag Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys 1570 1575 1580	4752
ctg aaa agc cag gtg aca agt cag cag cag gag atg gct gtc ttg gac Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp 1585 1590 1595 1600	4800
agg cag tta ggg cat aaa aag gag gag ctg cat cta ctc caa gga agc Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser 1605 1610 1615	4848
atg gtc cag gca aaa gct gac ctc cag gaa gct ctg aga ctg gga gag Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu 1620 1625 1630	4896
act gaa gta act gag aag tgc aat cac att agg gaa gta aaa tct ctt Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu 1635 1640 1645	4944
ctg gaa gaa ctg agt ttt cag aaa gga gaa cta aat gtt cag att agt Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser 1650 1655 1660	4992
gaa aga aaa act caa ctt aca ctt ata aag cag gaa att gaa aaa gag Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu 1665 1670 1675 1680	5040

## REPLACEMENT FIGURES

Page 24 of 44

## Figure 12H

gaa gaa aat ctt cag gtt gtt tta agg cag atg tct aaa cat aaa acc Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr 1685 1690 1695	5088
gaa cta aag aat att ctg gac atg ttg caa ctt gaa aac cat gag cta Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu Leu 1700 1705 1710	5136
caa ggt ttg aag cta caa cat gac caa agg gta tct gaa tta gag aag Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu Lys 1715 1720 1725	5184
act cag gtg gca gtg cta gag gag aaa ctg gag tta gag aat ttg cag Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu Gln 1730 1735 1740	5232
cag ata tcc cag cag cag aaa ggg gaa ata gag tgg cag aag cag ctc Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln Leu 1745 1750 1755 1760	5280
ctt gag agg gat aaa cga gaa ata gaa cga atg act gct gag tcc cga Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser Arg 1765 1770 1775	5328
gct tta caa tcg tgt gtt gag tgt ttg agc aaa gaa aag gaa gat ctc Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp Leu 1780 1785 1790	5376
caa gag aaa tgt gac att tgg gaa aaa aag ttg gca caa acc aaa agg Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys Arg 1795 1800 1805	5424
gtt tta gca gca gca gaa gaa aat agc aaa atg gag caa tca aac tta Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn Leu 1810 1815 1820	5472
gaa aag ttg gaa ttg aat gtc aga aaa ctg cag cag gaa cta gac caa Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp Gln 1825 1830 1835 1840	5520
cta aac aga gac aag ttg tca ctg cat aac gac att tca gca atg caa Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met Gln 1845 1850 1855	5568
cag cag ctc caa gaa aaa cga gaa gca gta aac tca ctg cag gag gaa Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu Glu 1860 1865 1870	5616
cta gct aat gtc caa gac cat ttg aac cta gca aaa cag gac ctg ctt Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu Leu 1875 1880 1885	5664
cac acc acc aag cat cag gat gtg ttg ctc agt gag cag acc cga ctc His Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg Leu 1890 1895 1900	5712
cag aag gac atc agt gaa tgg gca aat agg ttt gaa gac tgt cag aaa Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln Lys 1905 1910 1915 1920	5760



## REPLACEMENT FIGURES

Page 25 of 44

## Figure 12I

gaa gag gag aca aaa caa caa ctt caa gtg ctt cag aat gag att Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu Ile 1925 1930 1935	5808
gaa gaa aac aag ctc aaa cta gtc caa caa gaa atg atg ttt cag aga Glu Glu Asn Lys Lys Leu Val Gln Gln Glu Met Met Phe Gln Arg 1940 1945 1950	5856
ctc cag aaa gag aga gaa agt gaa gaa agc aaa tta gaa acc agt aaa Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser Lys 1955 1960 1965	5904
gtg aca ctg aag gag caa cag cac cag ctg gaa aag gaa tta aca gac Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr Asp 1970 1975 1980	5952
cag aaa agc aaa ctg gac caa gtg ctc tca aag gtg ctg gca gct gaa Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala Glu 1985 1990 1995 2000	6000
gag cgt gtt agg act ctg cag gaa gag gag agg tgg tgt gag agc ctg Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser Leu 2005 2010 2015	6048
gag aag aca ctc tcc caa act aaa cgg cag ctt tca gaa agg gag cag Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu Gln 2020 2025 2030	6096
caa ttg gtg gag aaa tca ggt gag ctg ttg gcc ctc cag aaa gag gca Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu Ala 2035 2040 2045	6144
gat tct atg agg gca gac ttc agc ctt ctg cgg aac cag ttc ttg aca Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu Thr 2050 2055 2060	6192
gaa aga aag aaa gct gag aag cag gtg gcc agc ctg aag gaa gca ctt Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala Leu 2065 2070 2075 2080	6240
aag atc cag cgg agc cag ctg gag aaa aac ctt ctt gag caa aaa cag Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Glu Gln Lys Gln 2085 2090 2095	6288
gag aac agc tgc ata caa aag gaa atg gca aca att gaa ctg gta gcc Glu Asn Ser Cys Ile Gln Lys Glu Met Ala Thr Ile Glu Leu Val Ala 2100 2105 2110	6336
cag gac aac cat gag cgg gcc agg cgc ctg atg aag gag ctc aac cag Gln Asp Asn His Glu Arg Ala Arg Arg Leu Met Lys Glu Leu Asn Gln 2115 2120 2125	6384
atg cag tat gag tac acg gag ctc aag aaa cag atg gca aac caa aaa Met Gln Tyr Glu Tyr Thr Glu Leu Lys Lys Gln Met Ala Asn Gln Lys 2130 2135 2140	6432
gat ttg gag aga aga caa atg gaa atc agt gat gca atg agg aca ctt Asp Leu Glu Arg Arg Gln Met Glu Ile Ser Asp Ala Met Arg Thr Leu 2145 2150 2155 2160	6480

## REPLACEMENT FIGURES

Page 26 of 44

## Figure 12J

aaa tct gag gtg aag gat gaa atc aga acc agc ttg aag aat ctt aat Lys Ser Glu Val Lys Asp Glu Ile Arg Thr Ser Leu Lys Asn Leu Asn 2165 2170 2175	6528
cag ttt ctt cca gaa cta cca gca gat cta gaa gct att ttg gaa aga Gln Phe Leu Pro Glu Leu Pro Ala Asp Leu Glu Ala Ile Leu Glu Arg 2180 2185 2190	6576
aac gaa aac cta gaa gga gaa ttg gaa agc ttg aaa gag aac ctt cca Asn Glu Asn Leu Glu Gly Glu Leu Glu Ser Leu Lys Glu Asn Leu Pro 2195 2200 2205	6624
ttt acc atg aat gag gga cct ttt gaa gaa aaa ctg aac ttt tcc caa Phe Thr Met Asn Glu Gly Pro Phe Glu Glu Lys Leu Asn Phe Ser Gln 2210 2215 2220	6672
gtt cac ata atg gat gaa cac tgg cgt gga gaa gca ctc cgg gag aaa Val His Ile Met Asp Glu His Trp Arg Gly Glu Ala Leu Arg Glu Lys 2225 2230 2235 2240	6720
ctg cgt cac cgg gaa gac cga ctc aag gcc caa ctc cga cac tgt atg Leu Arg His Arg Glu Asp Arg Leu Lys Ala Gln Leu Arg His Cys Met 2245 2250 2255	6768
tcc aag caa gca gaa gta tta att aaa gga aag cgg cag aca gag ggc Ser Lys Gln Ala Glu Val Leu Ile Lys Gly Lys Arg Gln Thr Glu Gly 2260 2265 2270	6816
act tta cac agt ttg agg aga caa gta gat gct tta ggg gaa ttg gtc Thr Leu His Ser Leu Arg Arg Gln Val Asp Ala Leu Gly Glu Leu Val 2275 2280 2285	6864
acc agc acc tct gca gat tca gcg tca tca ccc agt ctg tct cag ctg Thr Ser Thr Ser Ala Asp Ser Ala Ser Ser Pro Ser Leu Ser Gln Leu 2290 2295 2300	6912
gag tct tcc ctc aca gag gac tct caa ctt gga caa aat cag gaa aag Glu Ser Ser Leu Thr Glu Asp Ser Gln Leu Gly Gln Asn Gln Glu Lys 2305 2310 2315 2320	6960
aat gcc tca gcc aga tga 6978 (SEQ ID NO:1) Asn Ala Ser Ala Arg (SEQ ID NO:2) 2325	

## REPLACEMENT FIGURES

Page 27 of 44

## Figure 13A

atg gaa gtt gag caa gag cag cgg cgc aga aag gtg gag gcc ggg agg	48
Met Glu Val Glu Gln Glu Gln Arg Arg Arg Lys Val Glu Ala Gly Arg	
1 5 10 15	
acg aag ctt gct cac ttc cga cag aga aaa aca aaa ggt gac agt tcg	96
Thr Lys Leu Ala His Phe Arg Gln Arg Lys Thr Lys Gly Asp Ser Ser	
20 25 30	
cat tcg gag aaa aag acg gcg aag agg aag ggc tcg gct gtc gat gcg	144
His Ser Glu Lys Lys Thr Ala Lys Arg Lys Gly Ser Ala Val Asp Ala	
35 40 45	
tct gtc cag gag gag agt ccg gta acc aag gag gac agc gca ctc tgt	192
Ser Val Gln Glu Glu Ser Pro Val Thr Lys Glu Asp Ser Ala Leu Cys	
50 55 60	
gga gga ggg gac att tgc aaa agc aca tca tgt gac gac acc cct gat	240
Gly Gly Gly Asp Ile Cys Lys Ser Thr Ser Cys Asp Asp Thr Pro Asp	
65 70 75 80	
ggg gca gga ggg gcc ttt gca gct cag ccg gag gac tgt gat gga gag	288
Gly Ala Gly Gly Ala Phe Ala Ala Gln Pro Glu Asp Cys Asp Gly Glu	
85 90 95	
aag aga gag gac ttg gaa cag ctg cag cag aag caa gtc aat gac cat	336
Lys Arg Glu Asp Leu Glu Gln Leu Gln Gln Lys Gln Val Asn Asp His	
100 105 110	
cct cca gag cag tgt ggg atg ttc aca gtc agt gac cac cca cca gaa	384
Pro Pro Glu Gln Cys Gly Met Phe Thr Val Ser Asp His Pro Pro Glu	
115 120 125	
cag cat ggg atg ttc aca gtc ggt gac cac cca cca gaa cag cgt ggg	432
Gln His Gly Met Phe Thr Val Gly Asp His Pro Pro Glu Gln Arg Gly	
130 135 140	
atg ttc aca gtc agt gac cac cca cca gaa cag cat ggg atg ttc aca	480
Met Phe Thr Val Ser Asp His Pro Pro Glu Gln His Gly Met Phe Thr	
145 150 155 160	
gtc agt gac cac cca cca gaa cag cgt ggg atg ttc aca atc agt gac	528
Val Ser Asp His Pro Pro Glu Gln Arg Gly Met Phe Thr Ile Ser Asp	
165 170 175	
cac caa ccg gaa cag cgt ggg atg ttc aca gtc agt gac cac aca cca	576
His Gln Pro Glu Gln Arg Gly Met Phe Thr Val Ser Asp His Thr Pro	
180 185 190	
gaa cag cgt ggg atc ttc aca atc agt gac cac cca gca gaa cag cgt	624
Glu Gln Arg Gly Ile Phe Thr Ile Ser Asp His Pro Ala Glu Gln Arg	
195 200 205	
ggg atg ttc aca aag gag tgt gaa caa gaa tgt gaa ctt gcc att act	672
Gly Met Phe Thr Lys Glu Cys Glu Gln Glu Cys Glu Leu Ala Ile Thr	
210 215 220	
gac ctg gag agc ggc cgt gaa gat gag gct ggc ctg cat cag agt cag	720
Asp Leu Glu Ser Gly Arg Glu Asp Glu Ala Gly Leu His Gln Ser Gln	
225 230 235 240	

## REPLACEMENT FIGURES

Page 28 of 44

## Figure 13B

gcc gtg cat ggc ctt gag ctg gag gcg ctg cgc ctg agt ctg agc aac Ala Val His Gly Leu Glu Leu Glu Ala Leu Arg Leu Ser Leu Ser Asn 245 250 255	768
atg cac acg gcg cag ctg gag ctg aca cag gcc aac ctc cag aag gag Met His Thr Ala Gln Leu Glu Leu Thr Gln Ala Asn Leu Gln Lys Glu 260 265 270	816
aag gag acg gca ttg acg gag ctg cgg gag atg ctc aac agc cgg cgt Lys Glu Thr Ala Leu Thr Glu Leu Arg Glu Met Leu Asn Ser Arg Arg 275 280 285	864
gcc cag gag ctg gcc ctg cta cag agc agg cag cag cac gag ctg gag Ala Gln Glu Leu Ala Leu Gln Ser Arg Gln Gln His Glu Leu Glu 290 295 300	912
ctc ctc agg gag cag cac gca cgg gag aag gag gag gtg gtg ctc agg Leu Leu Arg Glu Gln His Ala Arg Glu Lys Glu Glu Val Val Leu Arg 305 310 315 320	960
tgt gga cag gaa gca gct gag ctg aag gag aag tta caa tca gaa atg Cys Gly Gln Glu Ala Ala Glu Leu Lys Glu Lys Leu Gln Ser Glu Met 325 330 335	1008
gag aaa aac gcc cag ata gta aag acc ctg aag gaa gat tgg gaa tct Glu Lys Asn Ala Gln Ile Val Lys Thr Leu Lys Glu Asp Trp Glu Ser 340 345 350	1056
gaa aaa gat tta tgt tta gaa aat cta cgc aaa gaa ctg tct gca aag Glu Lys Asp Leu Cys Leu Glu Asn Leu Arg Lys Glu Leu Ser Ala Lys 355 360 365	1104
cat caa tca gaa atg gag gat tta caa aac cag ttt cag aaa gaa ttg His Gln Ser Glu Met Glu Asp Leu Gln Asn Gln Phe Gln Lys Glu Leu 370 375 380	1152
gca gaa cag aga gct gag ttg gag aag att ttt caa gac aaa aac cag Ala Glu Gln Arg Ala Glu Leu Glu Lys Ile Phe Gln Asp Lys Asn Gln 385 390 395 400	1200
gct gaa cgg gcc ctt agg aac ctg gag agt cat cat caa gca gcc att Ala Glu Arg Ala Leu Arg Asn Leu Glu Ser His His Gln Ala Ala Ile 405 410 415	1248
gag aag tta cgt gaa gac ctg cag tcc gag cac ggc cgg tgt tta gaa Glu Lys Leu Arg Glu Asp Leu Gln Ser Glu His Gly Arg Cys Leu Glu 420 425 430	1296
gac ttg gag ttc aag ttc aaa gag agc gag aaa gaa aaa cag ctg gag Asp Leu Glu Phe Lys Phe Lys Glu Ser Glu Lys Glu Lys Gln Leu Glu 435 440 445	1344
tta gag aat ctt caa gca tca tat gaa gac ctg aag gca caa tca caa Leu Glu Asn Leu Gln Ala Ser Tyr Glu Asp Leu Lys Ala Gln Ser Gln 450 455 460	1392
gaa gag atc agg cgc ttg tgg tcc cag ctt gat tct gcc agg acc agt Glu Glu Ile Arg Arg Leu Trp Ser Gln Leu Asp Ser Ala Arg Thr Ser 465 470 475 480	1440

## REPLACEMENT FIGURES

Page 29 of 44

## Figure 13C

aga cag gaa ttg agt gag cta cat gag caa ctc ctg gcg cgc acc tct	1488
Arg Gln Glu Leu Ser Glu Leu His Glu Gln Leu Leu Ala Arg Thr Ser	
485 490 495	
cgt gtg gaa gat tta gaa cag ctg aag cag cga gaa aaa acc cag cat	1536
Arg Val Glu Asp Leu Glu Gln Leu Lys Gln Arg Glu Lys Thr Gln His	
500 505 510	
gag tcc gaa ctg gag caa ctg agg att tat ttt gaa aag aag tta agg	1584
Glu Ser Glu Leu Glu Gln Leu Arg Ile Tyr Phe Glu Lys Lys Leu Arg	
515 520 525	
gat gct gag aaa act tac caa gaa gac cta acc ctg tta cag cag agg	1632
Asp Ala Glu Lys Thr Tyr Gln Glu Asp Leu Thr Leu Leu Gln Gln Arg	
530 535 540	
ctg cag ggg gcg agg gaa gat gct ctt ctg gac tct gtg gaa gtt ggg	1680
Leu Gln Gly Ala Arg Glu Asp Ala Leu Leu Asp Ser Val Glu Val Gly	
545 550 555 560	
ttg tcc tgt gtg ggt tta gaa gag aaa cct gag aaa gga aga aaa gat	1728
Leu Ser Cys Val Gly Leu Glu Glu Lys Pro Glu Lys Gly Arg Lys Asp	
565 570 575	
cac gtt gat gaa ctc gag cct gag cga cat aag gag agc ctg cca cgc	1776
His Val Asp Glu Leu Glu Pro Glu Arg His Lys Glu Ser Leu Pro Arg	
580 585 590	
ttc cag gcg gag tta gaa gaa agc cac agg cac cag ctg gaa gcg ctg	1824
Phe Gln Ala Glu Leu Glu Glu Ser His Arg His Gln Leu Glu Ala Leu	
595 600 605	
gag tct ccc ctc tgc atc cag cac gag ggg cat gtc tca gac aga tgc	1872
Glu Ser Pro Leu Cys Ile Gln His Glu Gly His Val Ser Asp Arg Cys	
610 615 620	
tgc gta gag act tca gca ttg gga cac gag tgg cgt ctg gaa ccc tct	1920
Cys Val Glu Thr Ser Ala Leu Gly His Glu Trp Arg Leu Glu Pro Ser	
625 630 635 640	
gaa ggg cac agc caa gag ctt ccc tgg gtg cat ctc cag ggt gtg cag	1968
Glu Gly His Ser Gln Glu Leu Pro Trp Val His Leu Gln Gly Val Gln	
645 650 655	
gac ggg gac ttg gag gcc gac aca gag cgg gca gcc aga gtc ttg ggt	2016
Asp Gly Asp Leu Glu Ala Asp Thr Glu Arg Ala Ala Arg Val Leu Gly	
660 665 670	
ctg gaa act gag cac aag gtg caa ctt tcg ctt ctt cag act gag ctc	2064
Leu Glu Thr Glu His Lys Val Gln Leu Ser Leu Leu Gln Thr Glu Leu	
675 680 685	
aaa gaa gaa att gaa ctc cta aaa ata gaa aat aga aat ttg tat gag	2112
Lys Glu Glu Ile Glu Leu Leu Lys Ile Glu Asn Arg Asn Leu Tyr Glu	
690 695 700	
aag ttg cag cat gaa act cgt ctg aag gac gat ttg gag aag gta aaa	2160
Lys Leu Gln His Glu Thr Arg Leu Lys Asp Leu Glu Lys Val Lys	
705 710 715 720	

## REPLACEMENT FIGURES

Page 30 of 44

## Figure 13D

cac aat cta att gaa gac cac cag aag gaa cta aat aat gct aag caa	2208
His Asn Leu Ile Glu Asp His Gln Lys Glu Leu Asn Asn Ala Lys Gln	
725 730 735	
aag act gag ctg atg aaa cag gaa ttc caa aga aaa gaa acg gac tgg	2256
Lys Thr Glu Leu Met Lys Gln Glu Phe Gln Arg Lys Glu Thr Asp Trp	
740 745 750	
aaa gtt atg aag gag gag cta cag cgg gaa gct gag gag aag tta aca	2304
Lys Val Met Lys Glu Glu Leu Gln Arg Glu Ala Glu Glu Lys Leu Thr	
755 760 765	
ttg atg cta ctt gaa ctg aga gaa aag gct gaa tcc gag aaa cag acc	2352
Leu Met Leu Leu Glu Leu Arg Glu Lys Ala Glu Ser Glu Lys Gln Thr	
770 775 780	
atc ata aac aag ttt gag ctt cga gaa gct gaa atg agg cag ctt cag	2400
Ile Ile Asn Lys Phe Glu Leu Arg Glu Ala Glu Met Arg Gln Leu Gln	
785 790 795 800	
gac caa cag gca gcc cag atc ctg gat ctg gag agg tcc ttg acg gag	2448
Asp Gln Gln Ala Ala Gln Ile Leu Asp Leu Glu Arg Ser Leu Thr Glu	
805 810 815	
cag cag ggc cgc ctg cag cag ctg gaa cag gac ctc act tca gac gac	2496
Gln Gln Gly Arg Leu Gln Gln Leu Glu Gln Asp Leu Thr Ser Asp Asp	
820 825 830	
gcc ctg cat tgc agc cag tgt ggg cgg gag ccg ccc aca gcc cag gac	2544
Ala Leu His Cys Ser Gln Cys Gly Arg Glu Pro Pro Thr Ala Gln Asp	
835 840 845	
ggg gag ctt gcc gcg ctc cac gtg aag gaa gac tgc gcc ctg cag ctg	2592
Gly Glu Leu Ala Ala Leu His Val Lys Glu Asp Cys Ala Leu Gln Leu	
850 855 860	
atg ctg gcc cgg agc agg ttt tta gag gaa cgt aaa gag atc acc gag	2640
Met Leu Ala Arg Ser Arg Phe Leu Glu Glu Arg Lys Glu Ile Thr Glu	
865 870 875 880	
aaa ttc agt gcg gaa caa gat gcc ttc ctg cag gag gcc cag gag cag	2688
Lys Phe Ser Ala Glu Gln Asp Ala Phe Leu Gln Glu Ala Gln Glu Gln	
885 890 895	
cat gcc cgt gag ctg cag ctc ctc cag gag aga cac cag cag cag ctc	2736
His Ala Arg Glu Leu Gln Leu Leu Gln Glu Arg His Gln Gln Gln Leu	
900 905 910	
ctg tca gtg acg gcg gag ctc gag gcc aga cac cag gcc gcg ttg ggc	2784
Leu Ser Val Thr Ala Glu Leu Glu Ala Arg His Gln Ala Ala Leu Gly	
915 920 925	
gag ctg aca gcc tcc tta gag agc aag cag ggg gct ctg ctg gct gca	2832
Glu Leu Thr Ala Ser Leu Glu Ser Lys Gln Gly Ala Leu Leu Ala Ala	
930 935 940	
cgt gtg gcc gaa ctg cag aca aaa cac gct gcc gac ctc gcc gct ctg	2880
Arg Val Ala Glu Leu Gln Thr Lys His Ala Ala Asp Leu Gly Ala Leu	
945 950 955 960	

## REPLACEMENT FIGURES

Page 31 of 44

## Figure 13E

gag acc aga cat ctg tcc agc ctt gat tct ttg gaa tcc tgt tac ctc Glu Thr Arg His Leu Ser Ser Leu Asp Ser Leu Glu Ser Cys Tyr Leu 965 970 975	2928
tct gaa ttt cag acc atc cgt gag gag cac agg cag gcc cta gag ctc Ser Glu Phe Gln Thr Ile Arg Glu Glu His Arg Gln Ala Leu Glu Leu 980 985 990	2976
tta cga gca gac ttt gag gaa caa ctg tgg aaa aag gac tct ctt cac Leu Arg Ala Asp Phe Glu Glu Leu Trp Lys Lys Asp Ser Leu His 995 1000 1005	3024
caa acg att ttg act caa gag ttg gag aaa ctg aag cgg aaa cac gaa Gln Thr Ile Leu Thr Gln Glu Leu Glu Lys Leu Lys Arg Lys His Glu 1010 1015 1020	3072
ggg gag cta cag tct gtg cgg gac cac ctg cga acc gaa gtg agc aca Gly Glu Leu Gln Ser Val Arg Asp His Leu Arg Thr Glu Val Ser Thr 1025 1030 1035 1040	3120
gag ctc gcc gga acc gtg gct cac gag ctg cag gga gtg cac cag ggt Glu Leu Ala Gly Thr Val Ala His Glu Leu Gln Gly Val His Gln Gly 1045 1050 1055	3168
gaa ttt gga agt gaa aag aaa act gct ttg cat gaa aaa gag gag aca Glu Phe Gly Ser Glu Lys Lys Thr Ala Leu His Glu Lys Glu Glu Thr 1060 1065 1070	3216
ctt cgg ctt cag agt gca cag gca cag cct ttt cac caa gag gag aaa Leu Arg Leu Gln Ser Ala Gln Ala Gln Pro Phe His Gln Glu Glu Lys 1075 1080 1085	3264
gag tct ttg tct ctg cag ctt caa aag aag aat cac caa gtc cag cag Glu Ser Leu Ser Leu Gln Leu Gln Lys Lys Asn His Gln Val Gln Gln 1090 1095 1100	3312
ctg aaa gac cag gtt tta tcc tta agt cac gag ata gaa gag tgc cgc Leu Lys Asp Gln Val Leu Ser Leu Ser His Glu Ile Glu Glu Cys Arg 1105 1110 1115 1120	3360
tcc gag ttg gag gtg ctg cag cag agg cgg gag cgg gag aac cgg gaa Ser Glu Leu Glu Val Leu Gln Gln Arg Arg Glu Arg Glu Asn Arg Glu 1125 1130 1135	3408
ggc gca aac ctc ctc tcc atg ctc aag gcc gac gtc aac ctg tcc cac Gly Ala Asn Leu Leu Ser Met Leu Lys Ala Asp Val Asn Leu Ser His 1140 1145 1150	3456
agc gaa aga ggg gcc ctc cag gac gcc ctg cgc agg ctg ctg ggt ttg Ser Glu Arg Gly Ala Leu Gln Asp Ala Leu Arg Arg Leu Leu Gly Leu 1155 1160 1165	3504
ttt gga gag acg ctg agg gca gcc gtc acc ctg agg agc cgg atc ggg Phe Gly Glu Thr Leu Arg Ala Ala Val Thr Leu Arg Ser Arg Ile Gly 1170 1175 1180	3552
gag cgc gtg ggg ctc tgc ctg gat gac gcg ggc gca ggc ctg gcc ctg Glu Arg Val Gly Leu Cys Leu Asp Asp Ala Gly Ala Gly Leu Ala Leu 1185 1190 1195 1200	3600

## REPLACEMENT FIGURES

Page 32 of 44

## Figure 13F

tcg aca gct ccg gcg ctg gag gag aca tgg tct gat gtg gcc ctc ccg Ser Thr Ala Pro Ala Leu Glu Glu Thr Trp Ser Asp Val Ala Leu Pro 1205 1210 1215	3648
gag ttg gac aga act ttg tct gaa tgt gca gag atg tct tcc gtg gct Glu Leu Asp Arg Thr Leu Ser Glu Cys Ala Glu Met Ser Ser Val Ala 1220 1225 1230	3696
gaa att agc agc cac atg cgt gaa agc ttt ctc atg agc cca gaa agt Glu Ile Ser Ser His Met Arg Glu Ser Phe Leu Met Ser Pro Glu Ser 1235 1240 1245	3744
gtg cgg gag tgt gag cag ccc atc cgg agg gtc ttc cag agc ctc agc Val Arg Glu Cys Glu Gln Pro Ile Arg Arg Val Phe Gln Ser Leu Ser 1250 1255 1260	3792
ctg gcc gtg gac ggc ctc atg gag atg gcc ctg gac tcc agc agg cag Leu Ala Val Asp Gly Leu Met Glu Met Ala Leu Asp Ser Ser Arg Gln 1265 1270 1275 1280	3840
ctg gaa gaa gca cgc caa att cat tct cgt ttt gaa aaa gaa ttt agt Leu Glu Glu Ala Arg Gln Ile His Ser Arg Phe Glu Lys Glu Phe Ser 1285 1290 1295	3888
ttt aag aat gag gag aca gca cag gtt gtc agg aag cac cag gag ctg Phe Lys Asn Glu Glu Thr Ala Gln Val Val Arg Lys His Gln Glu Leu 1300 1305 1310	3936
ctg gag tgt ttg aag gag gag agc gca gca aag gca gag ctg gcg ctg Leu Glu Cys Leu Lys Glu Glu Ser Ala Ala Lys Ala Glu Leu Ala Leu 1315 1320 1325	3984
gag ctg cac aag act cag ggt acc ctt gag gga ttc aag gtg gag aca Glu Leu His Lys Thr Gln Gly Thr Leu Glu Gly Phe Lys Val Glu Thr 1330 1335 1340	4032
gca gat ctg aag gag gtg ctg gcc ggg aag gag gat tcc gag cac cgt Ala Asp Leu Lys Glu Val Leu Ala Gly Lys Glu Asp Ser Glu His Arg 1345 1350 1355 1360	4080
ctg gtg ctg gag ctg gag agc ctg aga cgg cag ctg cag cag gcg gcc Leu Val Leu Glu Glu Ser Leu Arg Arg Gln Leu Gln Gln Ala Ala 1365 1370 1375	4128
cag gag cag gcg gcg ctg agg gag gag tgc acc cgt ctg tgg agt cgg Gln Glu Gln Ala Ala Leu Arg Glu Glu Cys Thr Arg Leu Trp Ser Arg 1380 1385 1390	4176
ggg gag gcc aca gcc acg gac gcc gag gcc aga gaa gct gct ctc ccg Gly Glu Ala Thr Ala Thr Asp Ala Glu Ala Arg Glu Ala Ala Leu Arg 1395 1400 1405	4224
aag gaa gtg gag gat ctg acc aaa gaa cag tcg gag acc agg aag cag Lys Glu Val Glu Asp Leu Thr Lys Glu Gln Ser Glu Thr Arg Lys Gln 1410 1415 1420	4272
gct gag aag gac cgc tca gcc ctg ctc tcc cag atg aag att ttg gag Ala Glu Lys Asp Arg Ser Ala Leu Leu Ser Gln Met Lys Ile Leu Glu 1425 1430 1435 1440	4320



## REPLACEMENT FIGURES

Page 33 of 44

## Figure 13G

tct gag tta gaa gaa cag ctg tct cag cat cgc ggg tgt gcc aag cag Ser Glu Leu Glu Glu Gln Leu Ser Gln His Arg Gly Cys Ala Lys Gln 1445 1450 1455	4368
gcg gag gcc gtc act gcc ctg gaa cag cag gtg gca tct ctg gac aag Ala Glu Ala Val Thr Ala Leu Glu Gln Gln Val Ala Ser Leu Asp Lys 1460 1465 1470	4416
cat ttg cgc aac cag cgg caa ttc atg gat gag cag gca gcc gag cgg His Leu Arg Asn Gln Arg Gln Phe Met Asp Glu Gln Ala Ala Glu Arg 1475 1480 1485	4464
gag cac gag cgc gag gag ttc cag cag gag att cag agg ctg gag ggg Glu His Glu Arg Glu Glu Phe Gln Gln Glu Ile Gln Arg Leu Glu Gly 1490 1495 1500	4512
cag ctc cgc cag gcg gcc aag ccg cag ccc tgg ggc cct cgc gac agc Gln Leu Arg Gln Ala Ala Lys Pro Gln Pro Trp Gly Pro Arg Asp Ser 1505 1510 1515 1520	4560
cag cag gcg ccg ctg gat gga gag gtt gag ttg tta caa caa aag ttg Gln Gln Ala Pro Leu Asp Gly Glu Val Glu Leu Leu Gln Gln Lys Leu 1525 1530 1535	4608
aga gaa aag ttg gat gaa ttt aat gaa ttg gct ata cag aaa gag tcg Arg Glu Lys Leu Asp Glu Phe Asn Glu Leu Ala Ile Gln Lys Glu Ser 1540 1545 1550	4656
gca gat aga caa gtg tta atg cag gaa gaa gaa att aaa cgt ctg gag Ala Asp Arg Gln Val Leu Met Gln Glu Glu Glu Ile Lys Arg Leu Glu 1555 1560 1565	4704
gag atg aac atc aac atc agg aaa aaa gtg gcc cag ctc cag gaa gaa Glu Met Asn Ile Asn Ile Arg Lys Lys Val Ala Gln Leu Gln Glu Glu 1570 1575 1580	4752
gtg gaa aaa cag aaa aac atc gtg aaa ggg ctg gaa cag gat aaa gag Val Glu Lys Gln Lys Asn Ile Val Lys Gly Leu Glu Gln Asp Lys Glu 1585 1590 1595 1600	4800
gtg tta aag aaa cag cag atg agt agc ttg ctt ctg gcg tcc acg ttg Val Leu Lys Lys Gln Gln Met Ser Ser Leu Leu Leu Ala Ser Thr Leu 1605 1610 1615	4848
cag tct aca cta gat gca ggc aga tgt ccc gag cct cct tcg ggc agc Gln Ser Thr Leu Asp Ala Gly Arg Cys Pro Glu Pro Pro Ser Gly Ser 1620 1625 1630	4896
cct cct gag ggt cca gaa ata cag tta gag gtg aca cag aga gca ctc Pro Pro Glu Gly Pro Glu Ile Gln Leu Glu Val Thr Gln Arg Ala Leu 1635 1640 1645	4944
ctg cgg cgc gag agc gag gtt ttg gac tta aaa gaa cag cta gaa aag Leu Arg Arg Glu Ser Glu Val Leu Asp Leu Lys Glu Gln Leu Glu Lys 1650 1655 1660	4992
atg aaa ggt gac tta gaa agt aaa aat gaa gaa ata cta cat ctg aac Met Lys Gly Asp Leu Glu Ser Lys Asn Glu Glu Ile Leu His Leu Asn 1665 1670 1675 1680	5040

## REPLACEMENT FIGURES

Page 34 of 44

## Figure 13H

tta aaa ttg gac atg cag aac agc cag act gct gtc agc ctc aga gaa Leu Lys Leu Asp Met Gln Asn Ser Gln Thr Ala Val Ser Leu Arg Glu 1685 1690 1695	5088
ctt gag gaa gag aac acg agc ttg aag gtc ata tat acc aga agt tct Leu Glu Glu Glu Asn Thr Ser Leu Lys Val Ile Tyr Thr Arg Ser Ser 1700 1705 1710	5136
gag att gaa gag ctg aaa gcc act att gaa aat ctg caa gag aat cag Glu Ile Glu Glu Leu Lys Ala Thr Ile Glu Asn Leu Gln Glu Asn Gln 1715 1720 1725	5184
aaa cga tta caa aag gag aaa gca gag gaa att gaa caa ctc cat gaa Lys Arg Leu Gln Lys Glu Lys Ala Glu Glu Ile Glu Gln Leu His Glu 1730 1735 1740	5232
gtc att gag aag ctg cag cac gag ctg tcc ctc atg ggg cct gtg gtg Val Ile Glu Lys Leu Gln His Glu Leu Ser Leu Met Gly Pro Val Val 1745 1750 1755 1760	5280
cac gaa gtc agc gac agt cag gct ggc agt ctg cag agc gag ctg ctc His Glu Val Ser Asp Ser Gln Ala Gly Ser Leu Gln Ser Glu Leu Leu 1765 1770 1775	5328
tgc tcc cag gcc ggg ggc cct cgt ggg cag gcc cta cag ggc gag ctc Cys Ser Gln Ala Gly Gly Pro Arg Gly Gln Ala Leu Gln Gly Glu Leu 1780 1785 1790	5376
gag gct gcg ctg gaa gcc aag gag gcc ctg agc cgg ctg ctg gct gac Glu Ala Ala Leu Glu Ala Lys Glu Ala Leu Ser Arg Leu Leu Ala Asp 1795 1800 1805	5424
cag gag cgc agg cac agc cag gcc ctg gag gcc ctg cag cag cgc ctc Gln Glu Arg Arg His Ser Gln Ala Leu Glu Ala Leu Gln Gln Arg Leu 1810 1815 1820	5472
cag ggc gca gag gag gct gcg gag cta cag ctg gct gag ctg gag cgc Gln Gly Ala Glu Glu Ala Ala Glu Leu Gln Leu Ala Glu Leu Glu Arg 1825 1830 1835 1840	5520
aat gta gcc ctc agg gag gct gag gtc gaa gac atg gcc tcc cgg atc Asn Val Ala Leu Arg Glu Ala Glu Val Glu Asp Met Ala Ser Arg Ile 1845 1850 1855	5568
cag gag ttc gaa gcg gcc ctg aaa gca aag gaa gcg acg att gcc gag Gln Glu Phe Glu Ala Ala Leu Lys Ala Lys Glu Ala Thr Ile Ala Glu 1860 1865 1870	5616
aga aat tta gaa atc gac gct ctg aac cag cgg aag gcg gcc cac tct Arg Asn Leu Glu Ile Asp Ala Leu Asn Gln Arg Lys Ala Ala His Ser 1875 1880 1885	5664
gcc gag ctg gag gcc gtc ctg ttg gcc ttg gcc cgc atc cgc cgc gcc Ala Glu Leu Glu Ala Val Leu Leu Ala Leu Ala Arg Ile Arg Arg Ala 1890 1895 1900	5712
ctg gag cag cag ccc ctg gca gcc ggg gcg gcg cct ccc gag ctg cag Leu Glu Gln Gln Pro Leu Ala Ala Gly Ala Pro Pro Glu Leu Gln 1905 1910 1915 1920	5760

## REPLACEMENT FIGURES

Page 35 of 44

## Figure 13I

tgg ctc cga gcg cag tgt gcc cgc ctc agc cgc cag ctg cag gtg ctg Trp Leu Arg Ala Gln Cys Ala Arg Leu Ser Arg Gln Leu Gln Val Leu 1925 1930 1935	5808
cac cag cgg ttc ctg agg tgc cag gtg gag ctg gac agg cgg cag gcc His Gln Arg Phe Leu Arg Cys Gln Val Glu Leu Asp Arg Arg Gln Ala 1940 1945 1950	5856
cgc aga gcc aca gct cac aca cgg gtg ccc ggg gcc cac cca cag cct Arg Arg Ala Thr Ala His Thr Arg Val Pro Gly Ala His Pro Gln Pro 1955 1960 1965	5904
cgc atg gat ggt ggc gcc aag gcc cag gtc acc ggc gac gtg gag gcc Arg Met Asp Gly Gly Ala Lys Ala Gln Val Thr Gly Asp Val Glu Ala 1970 1975 1980	5952
tcc cat gat gct gct ttg gag ccg gtt gtc cct gac cca cag ggt gat Ser His Asp Ala Ala Leu Glu Pro Val Val Pro Asp Pro Gln Gly Asp 1985 1990 1995 2000	6000
ctg cag cct gtc ctg gtg acg ttg aag gat gca cct ctc tgc aag caa Leu Gln Pro Val Leu Val Thr Leu Lys Asp Ala Pro Leu Cys Lys Gln 2005 2010 2015	6048
gaa ggc gtg atg tca gtg ctc acc gtc tgc cag agg cag ctg cag tcg Glu Gly Val Met Ser Val Leu Thr Val Cys Gln Arg Gln Leu Gln Ser 2020 2025 2030	6096
gag ctg ctc ttg gtg aaa aat gaa atg cgc ctg agt ctg gag gac ggc Glu Leu Leu Leu Val Lys Asn Glu Met Arg Leu Ser Leu Glu Asp Gly 2035 2040 2045	6144
ggc aag ggt aaa gaa aaa gta ctg gaa gat tgt cag ctg ccg aag gtc Gly Lys Gly Lys Glu Lys Val Leu Glu Asp Cys Gln Leu Pro Lys Val 2050 2055 2060	6192
gat ctc gta gct cag gtg aaa cag ctt cag gaa aaa ctg aac cgt ttg Asp Leu Val Ala Gln Val Lys Gln Leu Gln Glu Lys Leu Asn Arg Leu 2065 2070 2075 2080	6240
ctg tat tcc atg acc ttc cag aat gtg gat gct gcc gac acc aaa tct Leu Tyr Ser Met Thr Phe Gln Asn Val Asp Ala Ala Asp Thr Lys Ser 2085 2090 2095	6288
ctg tgg ccc atg gcc tca gca cac ctg ttg gag agc agc tgg agt gat Leu Trp Pro Met Ala Ser Ala His Leu Leu Glu Ser Ser Trp Ser Asp 2100 2105 2110	6336
gat tcc tgt gac gga gaa gag cct gac ata tca ccc cac ata gac aca Asp Ser Cys Asp Gly Glu Glu Pro Asp Ile Ser Pro His Ile Asp Thr 2115 2120 2125	6384
tgt gat gcc aat aca gcc acg ggg ggt gta act gat gtt atc aaa aat Cys Asp Ala Asn Thr Ala Thr Gly Gly Val Thr Asp Val Ile Lys Asn 2130 2135 2140	6432
cag gcc ata gac gcg tgt gat gcc aat aca acc cca ggg ggt gta act Gln Ala Ile Asp Ala Cys Asp Ala Asn Thr Thr Pro Gly Gly Val Thr 2145 2150 2155 2160	6480

## REPLACEMENT FIGURES

Page 36 of 44

## Figure 13J

gat gtt atc aaa aat tgg gat tcc ttg ata cca gat gaa atg cca gat Asp Val Ile Lys Asn Trp Asp Ser Leu Ile Pro Asp Glu Met Pro Asp 2165 2170 2175	6528
tct ccc att caa gaa aaa tca gaa tgt cag gac atg tct ctt tct tca Ser Pro Ile Gln Glu Lys Ser Glu Cys Gln Asp Met Ser Leu Ser Ser 2180 2185 2190	6576
ccg acc agc gta ctt ggt ggc tcc cgc cac cag agc cac act gca gag Pro Thr Ser Val Leu Gly Gly Ser Arg His Gln Ser His Thr Ala Glu 2195 2200 2205	6624
gct ggg ccc cgg aag agc ccg gtc ggg atg ctg gac ctg tct tcc tgg Ala Gly Pro Arg Lys Ser Pro Val Gly Met Leu Asp Leu Ser Ser Trp 2210 2215 2220	6672
agc tcc cct gag gtc ctc agg aag gac tgg acc ctg gag ccc tgg ccc Ser Ser Pro Glu Val Leu Arg Lys Asp Trp Thr Leu Glu Pro Trp Pro 2225 2230 2235 2240	6720
agc ctc ccc gtg aca ccc cac tca gga gcc ctg agc ctg tgc agt gcc Ser Leu Pro Val Thr Pro His Ser Gly Ala Leu Ser Leu Cys Ser Ala 2245 2250 2255	6768
gac aca tcc ctg ggg gac agg gcg gac acc tcg ctg cca cag acc cag Asp Thr Ser Leu Gly Asp Arg Ala Asp Thr Ser Leu Pro Gln Thr Gln 2260 2265 2270	6816
ggg ccg ggg ctg ctt tgt tcc cca ggc gtg tct gca gca gcg ctg gca Gly Pro Gly Leu Leu Cys Ser Pro Gly Val Ser Ala Ala Ala Leu Ala 2275 2280 2285	6864
ctg cag tgg gcc gag tct ccg ccg gct gac gac cac cat gtg cag agg Leu Gln Trp Ala Glu Ser Pro Pro Ala Asp Asp His His Val Gln Arg 2290 2295 2300	6912
acg gct gtg gag aaa gat gtc gaa gat ttt atc aca aca tcc ttt gat Thr Ala Val Glu Lys Asp Val Glu Asp Phe Ile Thr Thr Ser Phe Asp 2305 2310 2315 2320	6960
tct caa gaa aca tta agt tca cct cct cct gga tta gaa gga aaa gct Ser Gln Glu Thr Leu Ser Ser Pro Pro Gly Leu Glu Gly Lys Ala 2325 2330 2335	7008
gat aga agt gag aaa agt gac ggc tcg ggt ttt gga gca aga ctg agc Asp Arg Ser Glu Lys Ser Asp Gly Ser Gly Phe Gly Ala Arg Leu Ser 2340 2345 2350	7056
ccg ggg tca gga ggc cct gag gct caa act gct ggt cct gtg acc cct Pro Gly Ser Gly Gly Pro Glu Ala Gln Thr Ala Gly Pro Val Thr Pro 2355 2360 2365	7104
gct tcc atc tct gga agg ttt cag ccg ctg ccg gaa gcc atg aag gag Ala Ser Ile Ser Gly Arg Phe Gln Pro Leu Pro Glu Ala Met Lys Glu 2370 2375 2380	7152
aag gaa gtg cgt ccg aag cac gtg aag gct tta ctg cag atg gtg cgt Lys Glu Val Arg Pro Lys His Val Lys Ala Leu Leu Gln Met Val Arg 2385 2390 2395 2400	7200

## REPLACEMENT FIGURES

Page 37 of 44

## Figure 13K

gac gag agc cac cag atc ctg gcg ctg tca gaa ggc ctt gca ccc cca Asp Glu Ser His Gln Ile Leu Ala Leu Ser Glu Gly Leu Ala Pro Pro 2405 2410 2415	7248
agc ggc gag cca cac cca ccc cgg aag gaa gac gag ata cag gac atc Ser Gly Glu Pro His Pro Pro Arg Lys Glu Asp Glu Ile Gln Asp Ile 2420 2425 2430	7296
tcg ctc cat ggg gga aag acg cag gaa gtg ccc acc gcg tgc ccc gat Ser Leu His Gly Gly Lys Thr Gln Glu Val Pro Thr Ala Cys Pro Asp 2435 2440 2445	7344
tgg aga ggg gac ctt ctg cag gtt gtg caa gag gcc ttt gaa aaa gag Trp Arg Gly Asp Leu Leu Gln Val Val Gln Glu Ala Phe Glu Lys Glu 2450 2455 2460	7392
cag gag atg cag ggg gtt gag ctg cag ccc cga ctc agt ggc tca gat Gln Glu Met Gln Gly Val Glu Leu Gln Pro Arg Leu Ser Gly Ser Asp 2465 2470 2475 2480	7440
ctg ggg ggt cac agc tcc ctg ctc gaa agg ctg gag aag atc atc cgt Leu Gly Gly His Ser Ser Leu Leu Glu Arg Leu Glu Lys Ile Ile Arg 2485 2490 2495	7488
gag cag gga gac ctg cag gaa aag tcc ctg gag cat ctt cgc ttg ccg Glu Gln Gly Asp Leu Gln Glu Lys Ser Leu Glu His Leu Arg Leu Pro 2500 2505 2510	7536
gac cgg agc agc ctg ctg tcc gag atc cag gcg ctg cgt gcc cag ctg Asp Arg Ser Ser Leu Leu Ser Glu Ile Gln Ala Leu Arg Ala Gln Leu 2515 2520 2525	7584
cgc atg acg cac ctg cag aac cag gag aag ctg cag cac ttg cgc acg Arg Met Thr His Leu Gln Asn Gln Glu Lys Leu Gln His Leu Arg Thr 2530 2535 2540	7632
gcg ctg aca agc gca gag gcg cgc ggg agc cag cag gag cac cag ctg Ala Leu Thr Ser Ala Glu Ala Arg Gly Ser Gln Gln Glu His Gln Leu 2545 2550 2555 2560	7680
cgc agg cag gtt gaa ctg ctg gct tat aaa gta gag cag gag aag tgc Arg Arg Gln Val Glu Leu Leu Ala Tyr Lys Val Glu Gln Glu Lys Cys 2565 2570 2575	7728
att gct ggt gac ttg cag aag acg ctg agt gaa gag caa gag aag gca Ile Ala Gly Asp Leu Gln Lys Thr Leu Ser Glu Glu Gln Glu Lys Ala 2580 2585 2590	7776
aac agc gtg cag aag ctc ctg gcg gcg gag cag act gta gtg cga gat Asn Ser Val Gln Lys Leu Leu Ala Ala Glu Gln Thr Val Val Arg Asp 2595 2600 2605	7824
ttg aag tcc gac ctc tgt gag agc agg cag aag agc gaa cag ctg tcc Leu Lys Ser Asp Leu Cys Glu Ser Arg Gln Lys Ser Glu Gln Leu Ser 2610 2615 2620	7872
cgg tcc ctc tgc gag gtg cag cag gag gtc ctc cag ctg aga tcc atg Arg Ser Leu Cys Glu Val Gln Gln Glu Val Leu Gln Leu Arg Ser Met 2625 2630 2635 2640	7920

## REPLACEMENT FIGURES

Page 38 of 44

## Figure 13L

ctg agc agt aag gag aac gag ctg aag gcc gcg ctt cag gag ctg gag Leu Ser Ser Lys Glu Asn Glu Leu Lys Ala Ala Leu Gln Glu Leu Glu 2645 2650 2655	7968
agt gag cag ggg aag ggg cgt gcc ctg cag agc cag ctg gag gag gag Ser Glu Gln Gly Lys Gly Arg Ala Leu Gln Ser Gln Leu Glu Glu Glu 2660 2665 2670	8016
cag ctg cgg cac ctg cag agg gag agc cag agt gcc aag gcc ctg gag Gln Leu Arg His Leu Gln Arg Glu Ser Gln Ser Ala Lys Ala Leu Glu 2675 2680 2685	8064
gag ctg cgg gcg tct ttg gag aca cag cgt gct cag agc agt cga ctc Glu Leu Arg Ala Ser Leu Glu Thr Gln Arg Ala Gln Ser Ser Arg Leu 2690 2695 2700	8112
tgc gtg gca ctg aaa cac gag cag acg gcc aag gac aac ctg cag aag Cys Val Ala Leu Lys His Glu Gln Thr Ala Lys Asp Asn Leu Gln Lys 2705 2710 2715 2720	8160
gag ctg cgt atc gag cac tca cgc tgc gag gcc ttg ctg gct cag gag Glu Leu Arg Ile Glu His Ser Arg Cys Glu Ala Leu Leu Ala Gln Glu 2725 2730 2735	8208
cgg agc cag ctc tct gag ctc cag aag gac ctt gcg gct gag aag agc Arg Ser Gln Leu Ser Glu Leu Gln Lys Asp Leu Ala Ala Glu Lys Ser 2740 2745 2750	8256
cgc acc ctg gag ctg tca gag gcc ttg cgg cac gag cgg ctc ctg acc Arg Thr Leu Glu Leu Ser Glu Ala Leu Arg His Glu Arg Leu Leu Thr 2755 2760 2765	8304
gag cag ctg agc cag agg aca cag gag gct tgc gtg cac cag gac aca Glu Gln Leu Ser Gln Arg Thr Gln Glu Ala Cys Val His Gln Asp Thr 2770 2775 2780	8352
cag gcc cat cac gct ctg ctg cag aag ctg aag gag gag aag tcc cgg Gln Ala His His Ala Leu Leu Gln Lys Leu Lys Glu Glu Lys Ser Arg 2785 2790 2795 2800	8400
gtg gtg gac ttg caa gcg atg ctt gaa aag gtg cag cag caa gcc ctg Val Val Asp Leu Gln Ala Met Leu Glu Lys Val Gln Gln Gln Ala Leu 2805 2810 2815	8448
cat tct cag cag cag ctt gag gct gag gct cag aag cac tgt gag gcg His Ser Gln Gln Gln Leu Glu Ala Glu Ala Gln Lys His Cys Glu Ala 2820 2825 2830	8496
ctc agg aga gag aag gag gta agt gcc aca ctg aag tcg acg gtg gaa Leu Arg Arg Glu Lys Glu Val Ser Ala Thr Leu Lys Ser Thr Val Glu 2835 2840 2845	8544
gcc ctg cac acc caa aaa cga gag ctg aga tgc tct ctg gag aga gag Ala Leu His Thr Gln Lys Arg Glu Leu Arg Cys Ser Leu Glu Arg Glu 2850 2855 2860	8592
agg gag aaa cca gcg tgg ttg cag gca gaa tta gag cag tca cac cca Arg Glu Lys Pro Ala Trp Leu Gln Ala Glu Leu Glu Gln Ser His Pro 2865 2870 2875 2880	8640

## REPLACEMENT FIGURES

Page 39 of 44

## Figure 13M

cgg ttg aaa gag caa gaa gga cgc aag gct gcg agg agg agc gcg gag Arg Leu Lys Glu Gln Glu Gly Arg Lys Ala Ala Arg Arg Ser Ala Glu 2885 2890 2895	8688
gcc agg cag agc cca gcg gct gcg gag cag tgg agg aag tgg cag aga Ala Arg Gln Ser Pro Ala Ala Ala Glu Gln Trp Arg Lys Trp Gln Arg 2900 2905 2910	8736
gac aag gag aag ctg cga gaa tta gaa ctg cag cgt cag cgt gac ttg Asp Lys Glu Lys Leu Arg Glu Leu Glu Leu Gln Arg Gln Arg Asp Leu 2915 2920 2925	8784
cat aag atc aag cag ctt cag cag aca gtg aga gac ctg gag tcg aag His Lys Ile Lys Gln Leu Gln Gln Thr Val Arg Asp Leu Glu Ser Lys 2930 2935 2940	8832
gac gag gtg cct ggc agc cgc ctc cac cta ggt tct gcc cgc agg gct Asp Glu Val Pro Gly Ser Arg Leu His Leu Gly Ser Ala Arg Arg Ala 2945 2950 2955 2960	8880
gcc ggc tcg gat gcg gac cac ctc cgg gaa cag cag cga gag ctg gag Ala Gly Ser Asp Ala Asp His Leu Arg Glu Gln Gln Arg Glu Leu Glu 2965 2970 2975	8928
gcg atg agg cag cgg ctg ctc tct gcc gcc cgg ctt ctc acc agc ttc Ala Met Arg Gln Arg Leu Leu Ser Ala Ala Arg Leu Leu Thr Ser Phe 2980 2985 2990	8976
acc agc cag gcc gtg gac agg aca gtt aat gat tgg acg tca tcc aat Thr Ser Gln Ala Val Asp Arg Thr Val Asn Asp Trp Thr Ser Ser Asn 2995 3000 3005	9024
gag aaa gca gtg atg tct tta ctg cac acg ttg gag gag ctg aag tct Glu Lys Ala Val Met Ser Leu Leu His Thr Leu Glu Glu Leu Lys Ser 3010 3015 3020	9072
gac ttg agc agg ccc acc tcc tcc cag aaa aaa atg gca gca gag ctg Asp Leu Ser Arg Pro Thr Ser Ser Gln Lys Lys Met Ala Ala Glu Leu 3025 3030 3035 3040	9120
cag ttc cag ttt gtg gac gtc ctg ctg aaa gac aat gtt tcc ctc aca Gln Phe Gln Phe Val Asp Val Leu Leu Lys Asp Asn Val Ser Leu Thr 3045 3050 3055	9168
aaa gcg ctc agc acg gtg acc cag gag aag ctg gag ctg agc aga gcc Lys Ala Leu Ser Thr Val Thr Gln Glu Lys Leu Glu Leu Ser Arg Ala 3060 3065 3070	9216
gtg tct aag ctt gag aag ttg ctg aag cac cat ctg cag aag ggc tgc Val Ser Lys Leu Glu Lys Leu Leu Lys His His Leu Gln Lys Gly Cys 3075 3080 3085	9264
agc cca agc agg tcg gaa agg tct gct tgg aag cca gac gaa acg gct Ser Pro Ser Arg Ser Glu Arg Ser Ala Trp Lys Pro Asp Glu Thr Ala 3090 3095 3100	9312
cca cag agt tcc ctg agg cgc cca gac ccc ggc cgg ctt cca cca gct Pro Gln Ser Ser Leu Arg Arg Pro Asp Pro Gly Arg Leu Pro Pro Ala 3105 3110 3115 3120	9360

## REPLACEMENT FIGURES

Page 40 of 44

## Figure 13N

gcc agc gag gaa gca cac acc agc aat gtc aag atg gaa aaa ttg tac Ala Ser Glu Glu Ala His Thr Ser Asn Val Lys Met Glu Lys Leu Tyr 3125 3130 3135	9408
ctg cat tac ttg aga gca gag agc ttt aga aaa gct ctg att tat caa Leu His Tyr Leu Arg Ala Glu Ser Phe Arg Lys Ala Leu Ile Tyr Gln 3140 3145 3150	9456
aag aag tat ctt ttg ctg ttg att ggt gga ttc cag gat tct gaa caa Lys Lys Tyr Leu Leu Leu Ile Gly Gly Phe Gln Asp Ser Glu Gln 3155 3160 3165	9504
gaa aca ctc tcc atg att gcc cat ttg ggg gta ttt cct tcc aaa gca Glu Thr Leu Ser Met Ile Ala His Leu Gly Val Phe Pro Ser Lys Ala 3170 3175 3180	9552
gaa cgg aaa atc aca tct cgt cct ttc acc agg ttc cgc acg gcc gtc Glu Arg Lys Ile Thr Ser Arg Pro Phe Thr Arg Phe Arg Thr Ala Val 3185 3190 3195 3200	9600
agg gtg gtc att gca ata tta aga tta cgt ttt ttg gtt aag aaa tgg Arg Val Val Ile Ala Ile Leu Arg Leu Arg Phe Leu Val Lys Lys Trp 3205 3210 3215	9648
caa gaa gta gat cgg aaa gga gct ctg gca caa ggc aaa gcc cct cgc Gln Glu Val Asp Arg Lys Gly Ala Leu Ala Gln Gly Lys Ala Pro Arg 3220 3225 3230	9696
cca ggg ccc cga gca cga cag ccg cag tct cca ccc aga acc aga gag Pro Gly Pro Arg Ala Arg Gln Pro Gln Ser Pro Pro Arg Thr Arg Glu 3235 3240 3245	9744
tcc ccc cca acc cgg gat gta ccc tct ggc cac acc agg gac cct gcc Ser Pro Pro Thr Arg Asp Val Pro Ser Gly His Thr Arg Asp Pro Ala 3250 3255 3260	9792
aga ggc cgc aga ctg gca gca gca gcc tcc cca cac agt ggg gga aga Arg Gly Arg Arg Leu Ala Ala Ala Ala Ser Pro His Ser Gly Gly Arg 3265 3270 3275 3280	9840
gcc act cca tcc cca aat tca aga tta gaa aga tcc ctg act gct tct Ala Thr Pro Ser Pro Asn Ser Arg Leu Glu Arg Ser Leu Thr Ala Ser 3285 3290 3295	9888
caa gat cca gaa cat tcc ttg aca gag tat att cac cat tta gaa gtg Gln Asp Pro Glu His Ser Leu Thr Glu Tyr Ile His His Leu Glu Val 3300 3305 3310	9936
atc cag caa aga ttg gga ggg gta cta cca gat tct act tca aag aaa Ile Gln Gln Arg Leu Gly Gly Val Leu Pro Asp Ser Thr Ser Lys Lys 3315 3320 3325	9984
tcc tgc cac ccg atg att aaa cag tga Ser Cys His Pro Met Ile Lys Gln 3330 3335	10011 (SEQ ID NO:3) (SEQ ID NO:4)



REPLACEMENT FIGURES

Figure 14

Nud1p/ Cdc11p (35%/50%)		TACC (24%/47%)		Stathmin (40%/51%)		TACC (20%/41%)	
127	233	435	623	879- 913		1385	1658
Colled coils							
265- 349	434	801	845	1106	1317	2214	

Figure 15A

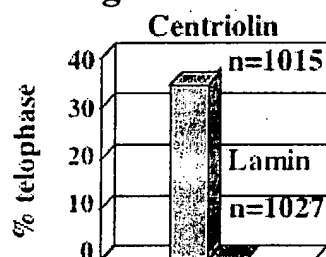
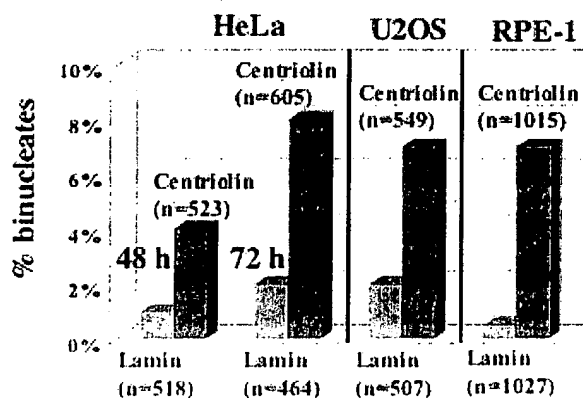


Figure 15B

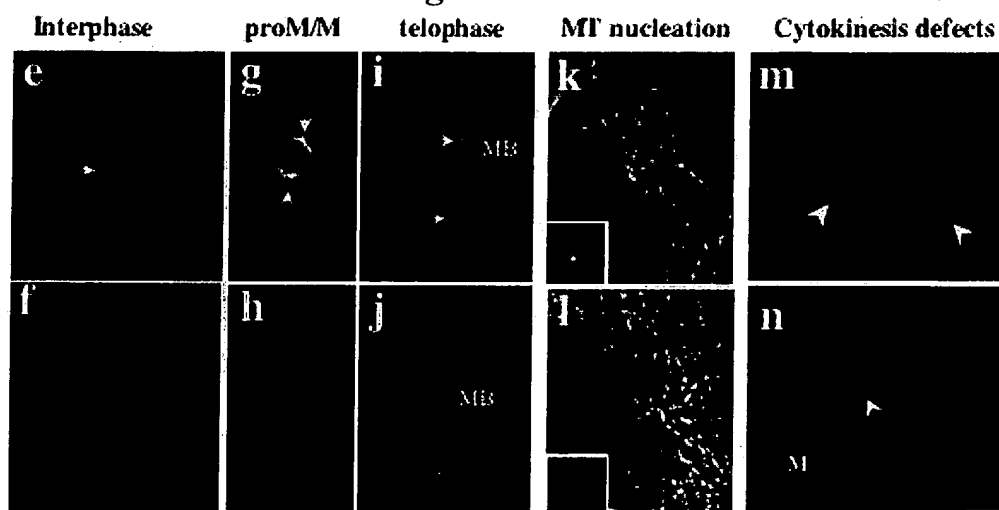
Figure 15C

Figure 15D

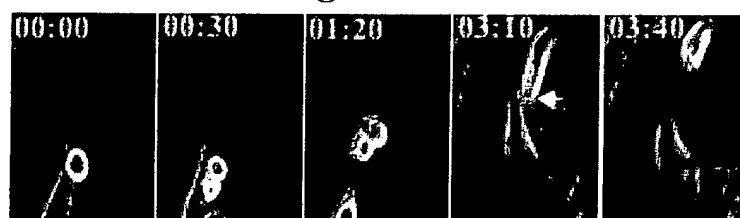


**REPLACEMENT FIGURES**

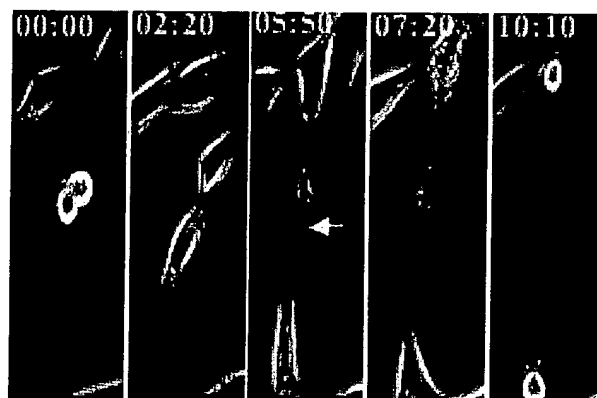
**Figures 15E-N**



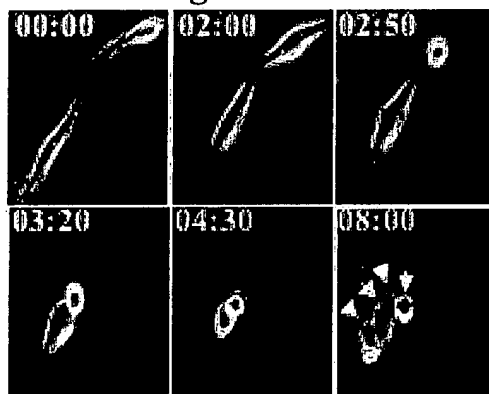
**Figure 16A**



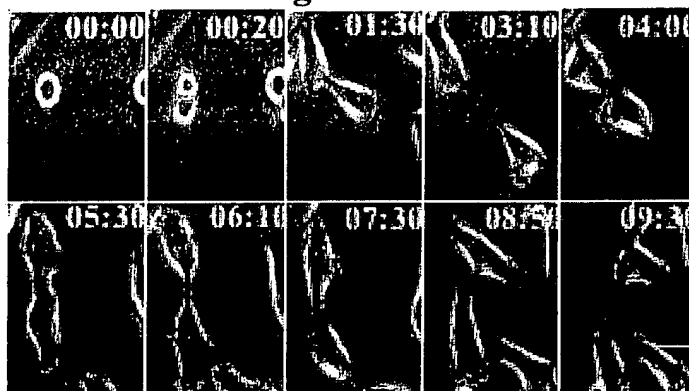
**Figure 16B**



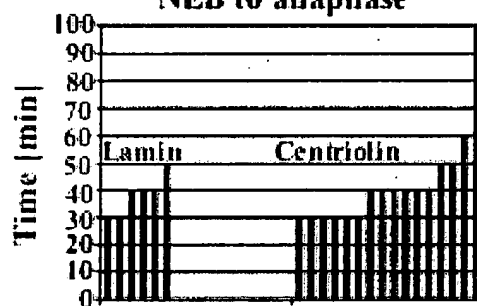
**Figure 16C**



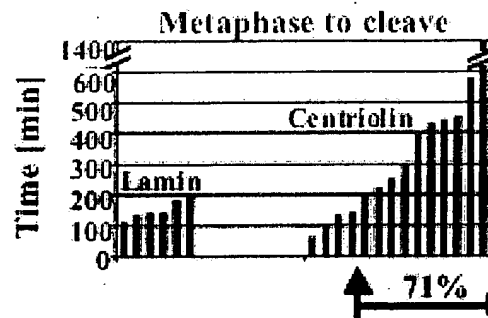
**Figure 16D**



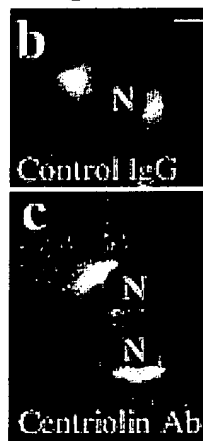
**Figure 16E**  
NEB to anaphase



**Figure 16F**



**Figure 17**



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